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Railway Age

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Increased Traffic at Reduced Cost

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RAILWAY AGE

Are Highway Transport Tax Opinions Too Conservative?

Even the strongest advocates of more adequate taxation of commercial motor transport on this side of the Atlantic have, as a general rule, at least by inference, limited their demands to a charge which would cover the proportionate costs of the public facilities used by such enterprises for their private profit plus the extra costs incurred solely for their benefit. In other words, if commercial motor vehicle license fees were sufficient to cover all the added costs of road construction and maintenance made necessary by their weight and size, plus a fair proportion of ordinary road costs gaged roughly on a ton-mileage or some other equitable basis, then apparently most of the advocates of more adequate taxation would be satisfied.

Taxation on this basis, however, would fall far short of equal dealing as between motor transport and the railways. This fact is emphasized by a recent presentation of the British railways to the Ministry of Transport. This presentation not only urges that the total cost of road construction and maintenance be borne by highway users, to the relief of real estate taxation, but also that a fair share of the cost of highway policing and signaling be borne by the road haulage industry. The railways point out too that taxation of private automobiles is proportionately too high.

Motor Vehicles and General Taxation

The railways assert that of the total annual cost of highways in Great Britain, £60,000,000, highway users pay £20,000,000 and general taxpayers £40,000,000. It is admitted that total taxation of automotive vehicles, including gasoline taxes, aggregates approximately £67,000,000—or £7,000,000 more than total expenditures on highways. Of this total, however, only £20,000,000 goes into the highway fund. The remainder is garnered into the exchequer as a share of the general tax receipts. The automotive industry's claim to this £47,000,000 of general taxes as an offset to the cost of highway construction, says the Railway Gazette (London), "obviously cannot be conceded, as the duty on imported petrol [virtually all gasoline used in Great Britain is imported] must be regarded to some extent, at any rate, as a tax levied for the benefit of the national exchequer, while the private car owner is regarded by the government as a legitimate object for 'sumptuary' taxation, seeing that one-third of the license duties paid by him is retained by the exchequer for general revenue purposes." The British proposal is, in short, that highway transport be placed upon exactly the same basis as any other private industry, paying all its own costs and, in addition, a fair contribution toward national defense, education and other public expenses as well. This contribution to general taxation it is now making, but it is falling short by £40,000,000 of paying total highway costs.

We call attention to this presentation by the British railways because it affords strong evidence that most advocates of more adequate taxation of commercial highway transport on this side of the Atlantic have, if they have erred, done so on the side of understatement rather than otherwise. Private motorists and real estate owners, if they are being unjustly burdened in Great Britain, are in some states, at least, in this country being even more outrageously mulcted for the benefit of the motor haulage industry than the most outspoken critics of the situation here have yet contended.

Expenditures for rural highways in the United States in 1930 totaled some 1,550 millions, of which about 875 millions were covered by motor vehicle license fees and gasoline taxes. If these sources had been called upon for taxes in the same proportion to highway expenditures as highway users in Britain had to provide, then gasoline taxes and license fees would have been practically double what they actually were. And yet it is contended, and with great show of reason, that the taxation of the British road haulage industry is inadequate.

It is, of course, not strictly accurate to compare

commercial motor vehicle taxation in Great Britain with that in the United States, for the reason that the system in Britain is uniform, whereas in the United States it varies from state to state and comparison is possible only by the use of averages. The variation in rates of taxation as between states, however, gives rise to even more startling inequalities than the averages disclose. The streets of New York are over-run daily by trucks from other states, very few of which bear more than one set of license plates. One sees trucks licensed in Massachusetts (where they are very lightly taxed indeed) which to reach New York must have traversed the state of Connecticut (which has relatively high registration fees) from one end to another. Of what benefit, one may ask, are high registration fees if they are to be levied against local trucks only, while really heavy users of the rural highways in interstate commerce escape them entirely? There are Ohio trucks which, to reach New York, have run most of their mileage in Pennsylvania, and trucks from Eastern Pennsylvania which have made most of their mileage in New Jersey. And yet neither of the states in which most of the mileage of these trucks is run, receive one cent in registration fees to pay for the highways they have provided for these trucks from other states.

If commercial motor transport, on the average, as we believe, is subsidized by reason of taxation inadequate to cover the direct costs which the public incurs in its behalf plus a reasonable contribution from it toward the general expenses of government, then in hundreds of specific cases, of which those cited are typical, it is being even more heavily subsidized and to an indefensible degree. In consequence, it is being forced most viciously beyond the limits of its true economic sphere.

There is pressing need for a searching and impartial examination into this subject to the end not only that inequalities be eliminated but also that definite principles be determined which may serve to remove this question as far as possible from the sphere of partisan debate. To achieve this end, the body entrusted with this inquiry should have representatives from all the important interests concerned, but with predominance in the hands of students of transportation and public finance who could be depended upon to place broad public interest above that of any special group. If the present session of Congress should provide for the initiation of such an inquiry it would add measurably to its already considerable constructive legislative achievements. Meantime, advocates of a general upward revision of taxation on heavy commercial vehicles may assure themselves that their contentions have on the whole been extremely modest.

The longer interests favorable to the inequitable *status quo* succeed in delaying full consideration of this problem, the more likely it is that views of the question similar to those put forward in Britain will gain foothold here.

If One Owned A Mile of Railway

At this time when the last day for filing one's income tax return for 1931 is only three days away, it is interesting to note the kind of a return that an owner of one mile of average railway, with the average investment, traffic and expenses, would file.

First of all, his investment in property for this average mile of line would amount to about $110,000, as compared with $108,500 in 1930 and $106,000 in 1929. His principal business, the transportation of freight, produced gross revenues of $13,410 on his mile of railway in 1931, a decrease from $16,833 in 1930 and from $19,909 in 1929. The transportation of passengers over his mile of line produced $2,269 in 1931, markedly less than the $3,006 in 1930 and the $3,601 in 1929.

His other gross receipts from carrying mail, express, baggage, and the like, likewise dropped to $1,766 in 1931 from $2,694 in 1929. Combining these items, the gross revenue from his mile of railway totaled $17,445 in 1931 as compared with $22,018 in 1930 and $26,204 in 1929.

What of the expense side of his account? First of all, he had to maintain his roadway and his signals, telephone wires, buildings, etc. His expenses for this purpose, after making drastic retrenchments, was $2,208 in 1931 as compared with $2,939 in 1930 and $3,563 in 1929.

Less Than Two Per Cent

His equipment, too, had to be maintained. Here again the need for economy, plus the reduced demand for cars and locomotives, enabled him to reduce the expense to $3,416 in 1931, as compared with $4,232 in 1930 and $4,995 in 1929. Likewise, these same factors reduced the actual cost of running his trains to $6,443 in 1931 as contrasted with $8,704 in 1929, while he cut his miscellaneous expenses, including traffic solicitation and general office costs, to $1,380 last year from $1,529 two years previous. The total operating expenses of his mile of railway were thus $13,447 in 1931 as compared with $16,385 in 1930 and $18,791 in 1929.

He still had to pay taxes on his mile of line and rentals for use of equipment and jointly used facilities. These items cost him $1,811 in 1931 as compared with $1,987 in 1930 and $2,162 in 1929. Considering these additional expenses, there was left in these various years as a return upon his investment, the sum of $2,187 in 1931 as compared with $3,646 in 1930 and $5,251 in 1929.

In other words, his property yielded him a return on his investment in it in these three years of 1.98 per cent, of 3.36 per cent and of 4.95 per cent, respectively.

Heavier Loading Means Profit

Operating cost per net ton for fully loaded car only half that of car 42 per cent loaded

By R. A. Black

Engineer of Transportation, Canadian National

WE MIGHT accept it as an axiom that railways are built, and trains are operated, primarily for the purpose of earning revenue and bringing to the owners a fair and reasonable return on the capital invested. There may be rare exceptions to this general rule, such as the case of state-owned railways located strategically for military purposes, or of colonization railways built through new and undeveloped territories. But even in these cases there is always the hope in the minds of the promoters that they will some day justify their existence economically, either directly or indirectly as feeders for the main trunk lines, so that our axiom is fundamentally true in all cases.

Since they first came into being as common carriers almost a hundred years ago, the steam railways have reaped the advantages that accrued to them from a rapid development and expansion of trade in almost every country of the world, resulting in an ever-increasing volume of business to be handled. Now, however, the situation has completely changed and that period of expected growth in rail transportation appears to be at an end. The motor vehicle has also appeared on the scene as a formidable competitor, and, with a steady decline in the rate of increase in traffic, the railways are faced with the problem of retaining what business they have against all forms of competition and operating at a profit, which can only be done by adopting every means

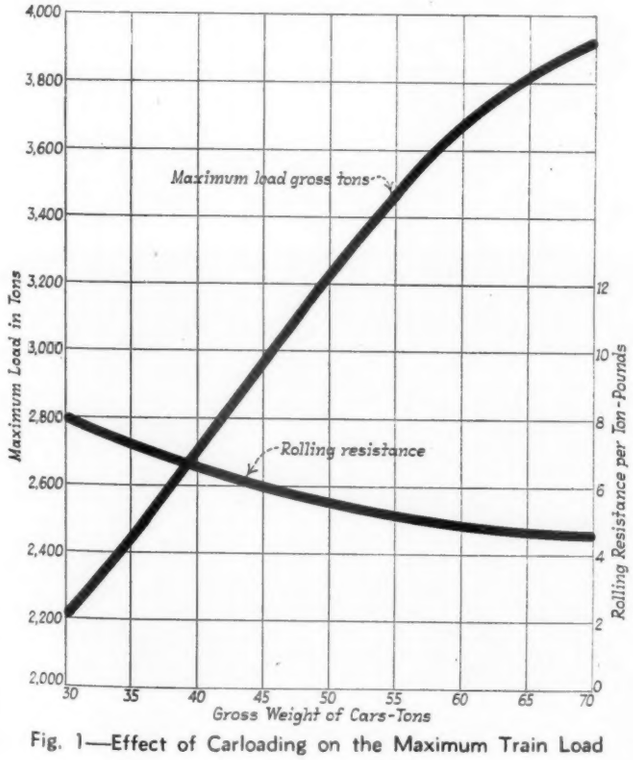


Fig. 1—Effect of Carloading on the Maximum Train Load

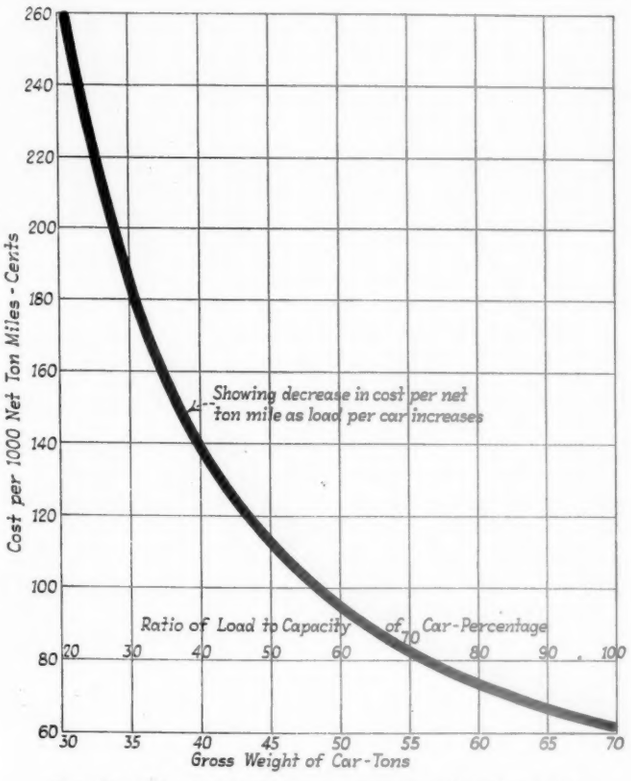


Fig. 2—Effect of Loading on Cost Per Net Ton Mile of Hauling Freight

of increasing their efficiency and reducing their costs.

Considering a freight train as a unit, we know that operating with a 100 per cent load should produce the most economical results in terms of cost per 1,000 gross ton miles, but it is from the net tons handled that a railway's revenue is derived. If every locomotive were to make its run fully loaded, and yet the individual cars in the train were only partially loaded, the operation would not be the most efficient, nor would it be the most profitable. Maintaining a ratio of 100 per cent load to the capacity of the cars in a train has an even greater bearing on the net return to the railway than has the maintaining of a ratio of 100 per cent load to the capacity of the engine.

The resistance against movement over the rails is greater, per ton, for lightly loaded than for heavily loaded cars, and as the overcoming of resistance consumes energy, and energy is money, it must follow that the greater the resistance is per ton, the greater the cost of hauling is per ton.

Let us consider a Mikado-type locomotive, fully loaded for a speed of 30 miles per hour, on level track, with cars of various gross weights, and assuming that 100,000- lb.-capacity cars are used, with a tare weight

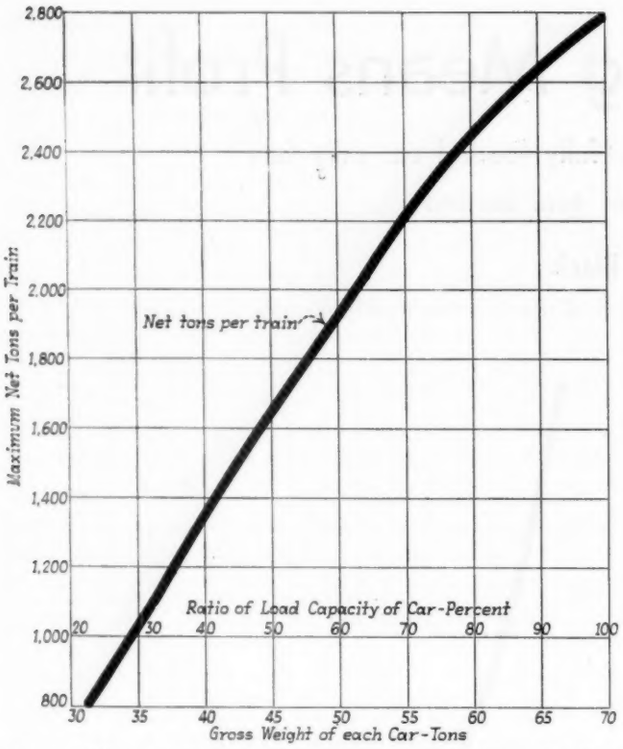


Fig. 3—Effect of Gross Weight of Cars on Net Tons per Train

of 40,000 lb. each. The effects of such a condition on the maximum load that can be hauled, the number of cars in the train, the net load and the cost per ton are shown by the following figures:

Gross weight of car	Rolling resistance per ton	Drawbar pull on level track	Maximum load, tons	Number of cars in train	Net load	Cost per 1,000 net ton miles (cents)
70	4.53	17,750	3,910	55.86	2,793	61.80
65	4.66	"	3,810	58.61	2,637	67.04
60	4.86	"	3,650	60.83	2,425	73.69
55	5.11	"	3,470	63.09	2,208	82.30
50	5.53	"	3,207	64.10	1,923	95.24
45	5.99	"	2,965	65.90	1,647	1.12.70
40	6.58	"	2,692	67.30	1,347	1.39.10
35	7.26	"	2,442	68.50	1,027	1.83.93
30	8.04	"	2,210	73.66	737	2.65.30
25	8.96	"	1,980	79.20	396	5.11.80

It may be interesting to note the effect that the weight of the cars has on the maximum load, and this is shown graphically in Fig. 1. With cars weighing 70 tons, it will be observed that the gross load is 3,910 tons and the net load 2,793 tons, whereas with cars weighing 45 tons the gross load is 2,965 tons and the net load 1,647 tons.

In other words, with fully loaded cars, 69 per cent more traffic can be moved per train than with cars carrying only half their capacity. The effect on the cost per 1,000 net ton miles is illustrated graphically by Fig. 2. With fully loaded cars, the cost is 45 per cent less, per net ton, than with cars loaded to only half their capacity, and from this it will be evident that from the standpoints of efficiency in moving traffic, and of economy in operation, cars should be loaded as nearly as possible to their full carrying capacity.

To illustrate further the effect of light loading, let us assume that the revenue corresponding to the items of expense included in our study, such as are generally termed the direct out-of-pocket costs, is $1.57 per 1,000 net ton miles. Then it means that trains fully loaded, but with cars carrying less than 40 per cent of their capacity, are operated at a loss, and every ton more that can be added to their lading, beyond the 40 per cent capacity, increases the net revenue just so much until the maximum load is reached.

We know that no two engine runs or subdivisions are exactly alike, and that the case we are considering is purely an imaginary one; but, nevertheless, the figures are relatively true in showing the effect of light loading on the net result of a railway's operations. It costs just twice as much per net ton to move traffic in cars only 42½ per cent loaded as it does if they are fully loaded. We cannot hope to achieve the ideal of 100 per cent load on every train and in every car, but we can strive to approach it, and the nearer we come to doing so, the greater will be the profits accruing to the railway, and the greater will be our efficiency as a rail transportation agency.

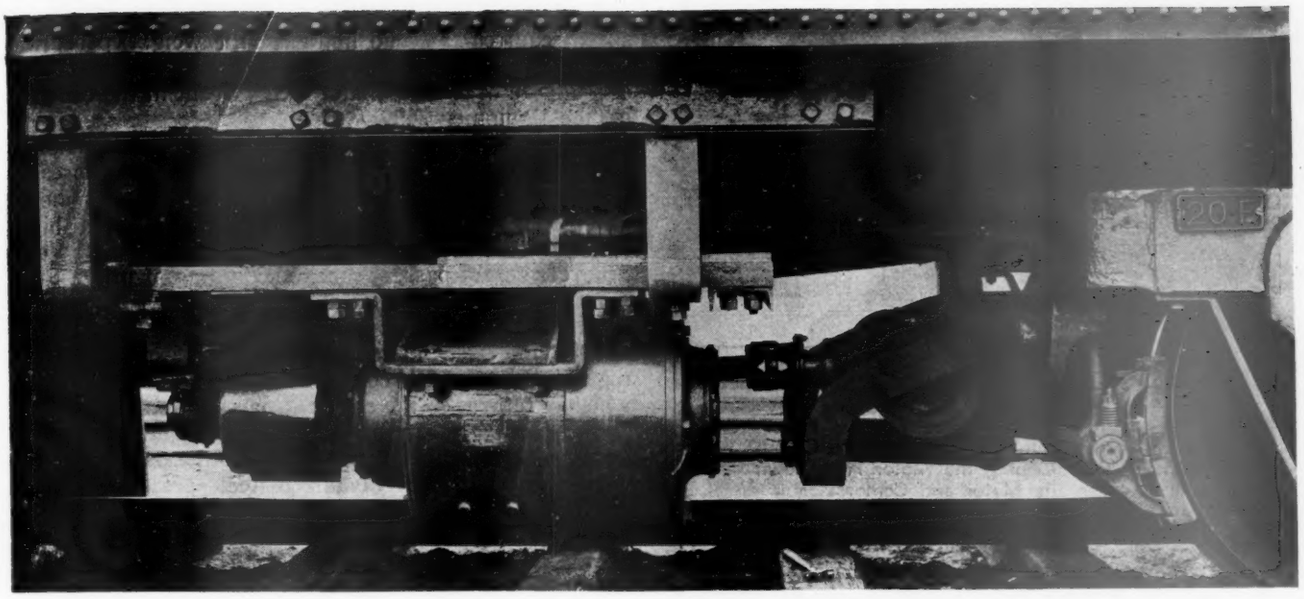
Swiss Diners Have Electric Kitchens

THE Rhaetian Railway in Switzerland has recently introduced dining car service as a means of offsetting automobile competition. The railway is a meter gage line operating in the mountainous eastern part of Switzerland and includes about 172 miles of line with grades up to 4.5 per cent. The overhead contact system supplies the trains with 11,000-volt single-phase power at 16⅔ cycles.

The cars are lighted from an axle driven generator and storage battery and are heated by electric heaters operating from a 300-volt, 16⅔ cycle a.c. train line. A 300/36-volt transformer provides current for emergency lighting purposes. The car heating units each have three elements and are made in 600 and 850-watt sizes. Installed capacity is from 8 to 10 watts per cubic foot and provides for outside temperatures of 30 deg. below zero.

Energy for electric cooking is also taken from the train line and is reduced from 300 to 220 volts by a transformer. Two taps on the transformer provide for variable heat. The cooking equipment in each diner consists of three 4-kw. cooking plates, two 2½-kw. ovens, one 1.7-kw., 26-gal. boiler and one 1.3-kw. warming cupboard, making a total connected load of 20 kw. Three-hundred-volt outlets are installed at stations where cooking must be done before a locomotive is connected to the train. The dining car personnel has found the electric kitchens highly satisfactory and have served as many as 108 meals in 2½ hours.

Interior of Rhaetian Railway Diner



Axle Generator Which Supplies the Power for the Operation of the Air Conditioning Equipment

Baltimore & Ohio Extends Use of Air Conditioning

Railroad to equip 78 cars with improved system which employs axle drive and new refrigerant

AN individual car-, all-electric air-conditioning and refrigerating system for railroad passenger cars, using a newly developed axle generator and storage battery for motive power in place of an internal combustion engine, has just been announced by the York Ice Machinery Corporation, York, Pa. The refrigerant used is also a new development and is known as Freon or F-12. The system is capable of pre-cooling cars without external connection. It requires less space and has a 50 per cent greater capacity than the equipment supplied previously by the York Company. The earlier installations were described in the October 31, 1931, issue of the *Railway Age*.

An initial order for the new equipment for 78 passenger cars has been placed by the Baltimore & Ohio Railroad. The equipment will be installed by the railroad and the cars are expected to be ready for service by June 1.

The new system, like former York systems, is a self-contained unit in each car which permits flexibility of operation independent of other cars in the train and of terminal facilities. Like the earlier types, the system comprises two parts, the refrigerating and air-conditioning equipment and the power system for supplying a constant and independent source of power.

Axle-Driven Generator Supplies Power

The electric power system consists of a large axle-driven three-brush generator, newly developed by engineers of the Baltimore & Ohio and the York Ice Machinery Corporation, and a new high-capacity storage battery which replaces the present car battery and fits in a standard A. R. A. battery box.

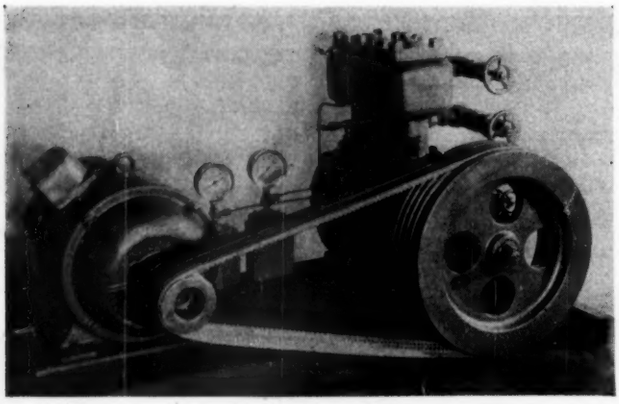
The generator, similar in principle to the generator used on an automobile, operates at variable speeds. Its output rises sharply with a slight increase in train speed and at a low train speed it provides sufficient output to operate the entire air-conditioning equipment. At higher speeds excess power is stored, for use in pre-cooling or when the train is standing in stations.

The generator is driven as follows: A gear box, containing two spiral bevel gears, is mounted on the end of the truck frame. The one gear is mounted on a shaft parallel to the car axle and driven from this axle by two flat belts. It drives the second gear at right angles to it. The second gear drives a universal shaft which in turn is connected to a stub shaft mounted on the underframe of the car. On this shaft there is mounted a pulley which is belted by a series of V-belts to the generator pulley.

This combination of axle-driven generator and high-capacity storage battery permits each car system to operate independently of the position of the car and whether the car is standing or in motion. It can be adjusted to meet the requirements of any run as to period of pre-cooling, speed, length of run, stops, etc.

The Refrigerant

The refrigerant, Freon, is dichloro-difluoro-methane, commonly known as F-12. This gas, developed by the



Motor-Driven Compressor Designed For the Freon (F-12) Refrigerant—The High- and Low-Pressure Cutouts For Starting and Stopping the Motor Are Shown Between the Motor and Compressor

Kinetic Chemical Co., Inc., a subsidiary of E. I. Du pont de Nemours, is a colorless, odorless, non-corrosive, non-combustible and non-inflammable refrigerant which may be used in equipment passing through the tunnels and in terminals. The Underwriters' Laboratories reports that the hazards to health from exposure to it are remote and that available data indicate it is in a class with the practically non-toxic gases.

System Eliminates Brine Cooler

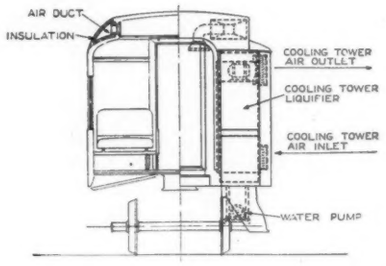
In the operation of the new all-electric system, as in the operation of earlier York systems, air is drawn from the car into the air-conditioning unit beneath the ceiling at one end of the car. Here it passes over the frosted fin-surface cooling coils containing liquid F-12. Heat and moisture are absorbed by the coils and foreign matter is removed by contact of the air with the frosted surfaces. If desired the air may be mixed in the air-conditioning unit with fresh air drawn through a grille in the ceiling of the vestibule and passed through a filter. The conditioned air is discharged into a duct along one side of the car in the space usually devoted to ventilators and from this duct it is distributed evenly over the entire length of the car, the duct outlets being so arranged with deflectors as to eliminate drafts in the car. The air is returned to the air conditioner through the return grille and the process is repeated.

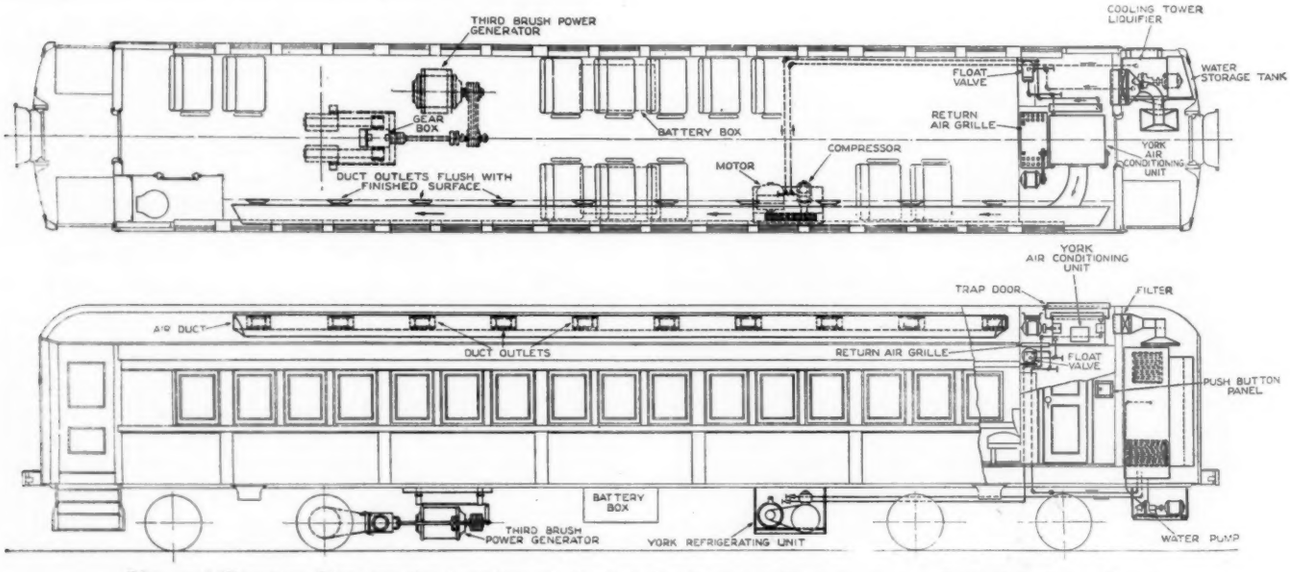
The use of F-12 and the fin-surface coils decreased space requirements and lightened the weight, permitted the elimination of the brine cooler and pump and gave an increase of approximately 50 per cent in the capacity of the equipment.

Refrigeration is provided in a closed cycle. The refrigerating unit consists primarily of a York compressor especially designed for F-12 operation, and motor mounted with high- and low-pressure cut-outs and high- and low-pressure gages on a steel base beneath the car. The refrigerant passes from the compressor in the form of vapor to the liquefying unit, which may be a cooling-tower liquefier or an air-cooled liquefier. The refrigerant, having been liquefied, then passes through a float regulator to the fin coils in the air conditioner after which it returns to the compressor, completing the cycle.

The cooling-tower liquefier, which takes the heat from the refrigerant and discharges it into the outside atmosphere, consists of a galvanized-steel spray chamber in which are the liquefying coils over which water is continuously sprayed through a series of bronze spray nozzles. The water is kept cool continuously by the effect of evaporation caused by air being forced through the tower. Water in a collecting tank at the bottom portion of the tower is kept at constant level by means of an automatic float from a make-up water tank at or near the tower. At the top of the spray chamber eliminators are provided to remove entrained moisture from the air and return this water to the spray chamber and settling pan.

In the air-cooled liquefier, air is drawn into the chamber through a vent in the side of the car, blown over the coils by electrically driven fans and discharged at the top of the car. The type of liquefier used depends upon operating conditions since the results obtained are the same with either type.





Plan and Elevation Showing the Location of the Air Conditioning Equipment in a Typical Railroad Coach

Electric control panels in the control cabinet permit the operation of the entire system by push-button control. One button starts the air-conditioning unit which may be operated without the refrigeration for spring and fall weather conditions. Another starts the refrigerating system and a third shuts off the whole system. There is also a hand switch, which, in the event the battery should become undercharged, will short circuit all the field resistance in the three-brush generator and allow the generator to deliver full output regardless of whether or not the refrigerating equipment is operating. A thermostat in the car will stop everything but the air-conditioner fan when a pre-determined temperature is reached. There are also overload and low-voltage relays which will shut down the complete system, including the circulating fan.

Four-System Hearings Concluded

WASHINGTON, D. C.

FOUR weeks of hearings before Chairman Porter and Examiner Koch of the Interstate Commerce Commission on the application of the principal eastern railroads for a modification of the commission's consolidation plan to provide for four eastern systems instead of five were concluded on March 5. Briefs are to be filed by April 18 and it is expected that oral arguments before the commission will be held beginning about April 25.

Just before the close of the hearings there was put into the record on behalf of the commission a tabulation of the commission's primary values of the roads included in the four-system plan, as of various dates ranging from 1915 to 1922, brought down to December 31, 1930, on the basis of annual reports to the commission's Bureau of Statistics by adding net additions, betterments, and retirements, less the increase in the accrued depreciation. These statistics were presented by E. S. Hobbs, of the commission's Bureau of Valuation, who explained that in 14 instances tentative primary valuations had been used in making the compilation. On this basis the four proposed systems would compare as follows:

	Mileage Operated	Adjusted Valuation
New York Central System	13,434	$2,502,719,622
Pennsylvania System	17,107	$3,143,084,636
Baltimore & Ohio System	11,979	$1,639,049,245
Chesapeake & Ohio-Nickel Plate System	13,681	$1,581,791,290

The above figures are exclusive of those for properties proposed to be jointly allocated. An exhibit introduced at the opening of the hearing by the applicants had stated the cost of reproduction new and value of land as found by the commission, plus net additions and betterments, as follows: New York Central System, $2,962,790,252; Pennsylvania System, $3,547,043,225; Baltimore & Ohio System, $2,055,352,146; Chesapeake & Ohio-Nickel Plate, $1,913,711,329. The table introduced by Mr. Hobbs follows:

I. C. C. Primary Values Brought Down to Dec. 31, 1930 on the Basis of the Annual Reports to the Commission—
—Four Eastern Systems

System and road	Date of valuation June 30	Miles of road operated Dec. 31, 1930	I.C.C. Primary Value brought down to Dec. 31, 1930
System No. 3—New York Central			
New York Central R.R.	1917	11,422	$1,971,677,863
Fulton Chain Ry.	1917	2	58,095
Raquette Lake	1917	24	$368,129
Chicago River & Indiana R. R.	1919	21	35,159,724
Louisville & Jefferson Bridge & R. R. Co.	1915	3	4,927,953
Muncie Belt Ry.	1915	3	45,303
Federal Valley Rys.	12-31-1922	16	363,953
Pittsburgh & Lake Erie R. R.	1916	232	123,751,351
Lake Erie & Eastern R. R.	1916	15	8,302,237
Delaware, Lackawanna & Western R. R.	1918	998	306,797,693
Harlem Transfer Co.	1918	....	1,171,372
New York, Ontario & Western Ry.	1916	569	43,945,298
Ulster & Delaware R. R.	1916	129	6,150,651
Total, New York Central System	....	13,434	2,502,719,622
System No. 4—Pennsylvania			
Pennsylvania R. R.	1918	10,892	2,370,756,836
Long Island R. R.	1916	404	139,741,802
Baltimore & Eastern R. R.	1927	138	[1] 883,753
Pennsylvania & Atlantic R. R.	1918	60	1,893,849
Philadelphia & Beach Haven R.R.	1916	12	263,603
Rosslyn Connecting R. R.	1915	3	407,965
Waynesburg & Washington R. R.	1917	28	737,829
Western Allegheny R. R.	1918	48	2,139,169
Philadelphia & Camden Ferry Co.	1916	....	2,605,644
Toledo, Peoria & Western R. R.	1917	239	7,568,669
Norfolk & Western Ry.	1916	2,237	388,745,086
Wabash Ry.	1919	2,524	191,324,649
New Jersey, Indiana & Illinois R. R.	1918	1,698	158,267,322
Detroit & Western Ry.	1919	1	44,686
Detroit, Toledo & Ironton R. R.	1918	510	34,206,105
Total, Pennsylvania System	....	17,107	3,143,084,636
System No. 5—Baltimore & Ohio			
Baltimore & Ohio R. R.	1918	5,653	778,187,007
Baltimore & Ohio Chicago Terminal R. R.	1918	85	32,075,549
Dayton & Union R. R.	1918	47	780,154
Staten Island Rapid Transit Ry.	1918	24	19,671,310
Reading Company	1917	1,454	297,806,300
Atlantic City R. R.	1917	164	14,711,557
Peoples Ry.	....	4	[2]
Central R. R. of New Jersey	1918	692	173,372,899
Lehigh & Hudson River Ry.	1918	97	5,065,485
Western Maryland Ry.	1919	896	96,206,387
Ann Arbor R. R.	1915	294	17,210,235
Manistique & Lake Superior R. R.	1915	38	674,404
Buffalo, Rochester & Pittsburg Ry.	1917	602	64,421,479
Buffalo & Susquehanna R. R.	1919	254	8,789,227
Chicago & Alton R. R.	1919	1,028	88,988,417
Chicago, Indianapolis & Louisville Ry.	1915	647	41,088,835
Total, Baltimore & Ohio System	....	11,979	1,639,049,245
System No. 6—Chesapeake & Ohio—Nickel Plate			
Chesapeake & Ohio Ry.	1916	3,120	430,291,896
Covington & Cincinnati Elevated R. R. & Transfer & Bridge Co.	1916	....	8,598,287
Pere Marquette Ry.	1915	2,306	124,750,736
Flint Belt R. R.	1927	8	[1] 1,306,858
New York, Chicago & St. Louis R. R.	1918	1,698	158,267,322
Erie R. R.	1918	2,174	322,735,262
Chicago & Erie R. R.	1918	270	29,376,081
New York, Susquehanna & Western R. R.	1918	132	14,288,016
Wilkes-Barre & Eastern R. R.	1918	87	3,572,438
New Jersey & New York R. R.	1918	46	1,701,079
Bath & Hammondsport R. R.	1918	9	119,516
Lehigh Valley R. R.	1917	1,362	250,978,439
Bessemer & Lake Erie R. R.	1916	228	51,466,852
Chicago & Eastern Illinois	1915	946	61,176,140
Chicago Heights Terminal Transportation R. R.	1919	7	1,168,738
Wheeling & Lake Erie Ry.	1918	512	50,557,023
Lorain & West Virginia Ry.	1918	25	935,740
Pittsburgh & West Virginia Ry.	1917	92	45,468,744
Pittsburg & Shawmut R. R.	1919	103	10,249,864
Pittsburg, Shawmut & Northern	1919	198	6,102,917
Detroit & Mackinac Ry.	1917	242	7,069,303
Manistee & Northeastern Ry.	1919	116	1,610,039
Total, Chesapeake & Ohio-Nickel Plate System	....	13,681	1,581,791,290
Joint—New York Central, Pennsylvania, Baltimore & Ohio, and Chesapeake & Ohio-Nickel Plate			
Delaware & Hudson R. R.	1916	882	106,941,022
Cooperstown & Charlotte Valley R. R.	1916	17	[1] 512,155
Greenwich & Johnsonville Ry.	1916	21	908,311
Schoharie Valley Ry.	1927	4	[1] 162,734
Napierville Junction Ry.[3]	....	....	.....
Lehigh & New England R. R.	1919	217	15,037,235
Montour R. R.	1917	58	7,271,500
Pitts., Chartiers & Yough. Ry.	1916	23	2,877,979
Monongahela Ry.	1916	178	24,303,923
Pittsburg & West Va. Ry.	1917	92	45,468,744
Elgin, Joliet & Eastern Ry.	1914	447	44,356,521
Akron, Canton & Young. Ry.	1918	171	8,534,102
Akron & Barberton Belt R. R.	1916	23	1,611,823
Joint—New York Central and Pennsylvania			
Central Indiana Ry.	1917	52	750,464
Cherry Tree & Dixonville R. R.	1917	39	1,914,560
Cambria & Indiana R. R.	1918	38	4,432,988

System and road	Date of valuation June 30	Miles of road operated Dec. 31, 1930	I.C.C. Primary Value brought down to Dec. 31, 1930
Lake Erie & Pittsburgh Ry.[3]...	1917	28	$4,835,955
Joint—New York Central (60%), Chicago & North Western (20%), and Chic., Milw., St. P. & Pac. (20%)			
Indiana Harbor Belt R. R.....	1917	119	15,019,905
Joint—New York Central and Chic., Rock Island & Pacific			
Kankakee & Seneca R. R.....	1915	42	905,213
Joint—Pennsylvania and Chesapeake & Ohio-Nickel Plate			
Virginian Ry.....	1916	562	108,643,942
Joint—Baltimore & Ohio and Chesapeake & Ohio-Nickel Plate			
Detroit & Toledo Shore Line R. R.	1917	50	6,319,110

[1] Book value less accrued depreciation.
[2] Does not file reports.
[3] Lessor of New York Central R. R.

A statement that the country is "not merely drifting toward government ownership" but that "we are sliding toward government ownership" was made by F. J. Lisman, of New York, who testified on March 4 in general approval of the four-system plan. Mr. Lisman made this observation by way of comment on some of the previous testimony, most of which, for the past three weeks, had been devoted to local objections to certain features of the plan, principally on the part of communities demanding the competition of more railroad systems than would be afforded them under the plan. Witnesses in this case are losing their perspective, Mr. Lisman said, because the railroads have too much competition now, without a fair return, and every city wants as many railroads as possible while the public is not willing to pay for what it wants. He thought witnesses urging local claims for competing railroads at every point were taking a short view and said that if the public persists in this attitude there will soon be no competition, but government ownership. As a matter of fact, he said, there are too many railroads now, and he pointed out that when the transportation act was passed, at a time when the railroads had a virtual monopoly of transportation, it contemplated consolidation of the railroads into a limited number of systems that were to earn a fair return. Referring to fears expressed that the port of Hampton Roads would lose traffic to New York, he said that New York could not handle the coal that passes through Hampton Roads, and he said that while he had not heard that northern New York was not getting good service from the New York Central he did know that the railroads were not getting a fair return. He emphasized that the commission was dealing with a national rather than a local problem and said the law did not contemplate that all competition should be preserved.

Representatives of the states of Virginia and West Virginia had opposed the plan on the ground that it proposes to include the Chesapeake & Ohio, Norfolk & Western and Virginian with systems interested in other parts of the country and in traffic from coal fields in competition with the southern coal district. W. E. Neffen, assistant attorney general of West Virginia, made the point that as the state taxes railroads on a valuation based largely on earnings to include these roads in other systems would tend to "dilute" their earnings and thus reduce the state's taxable values. He also said that displacement of coal traffic from the southern coal field would reduce tax revenues from the gross sales tax on coal. C. E. Bell, appearing for the Virginia Corporation Commission, made the same points but introduced a large number of exhibits to show that a combination of these roads with systems interested in other coal traffic and north Atlantic ports would tend to reduce competition and to increase rates, since the roads under stress of keen competition have in some instances made lower rates than the commission could compel them to make.

W. M. Davison and H. W. Wills, representing Philadelphia commercial organizations, opposed the allocation of the Reading and Central of New Jersey to the Baltimore & Ohio, saying they should be maintained as independent terminal properties.

Vigorous opposition to the plan was expressed on behalf of the Toledo, Peoria & Western by George P. McNear, Jr., president, who said his road desired to remain independent, so far as any consolidation plan so far proposed is concerned. He said it had opposed the plan for allocating the line to the proposed Wabash system and he also opposed the four-system plan which would allocate it to the Pennsylvania system which would also include the Wabash. He pointed out that when the Pennsylvania controlled the property in 1925 it was operated at a deficit but that under its present independent management it had earned a net operating income of $311,000 in 1930. He said that the company is now financed in a conservative manner and is able to put its earnings back into the property, whereas if acquired by one of the big systems it would increase the fixed charges and its earnings would probably be required for that purpose. He also said that the line operated independently can serve the public better than as part of a system and that the plan would reduce competition. When H. W. Bikle, general attorney of the Pennsylvania, asked if his testimony was not based on the assumption that the commission could not change its plan even if it did approve the proposed allocation, Mr. McNear said the railroads had insisted that the commission take their plan without change and that if the commission accepted it he thought it would be bound in good faith not to change it. This, he thought, would limit his road to one purchaser.

Another vigorous fight against the proposal to allocate the Delaware, Lackawanna & Western to the New York Central was made on behalf of the Syracuse, N. Y., Chamber of Commerce, which introduced four witnesses to object to the proposal to leave that city dependent on only one system, the New York Central. They said the railroad executives had testified that all important commercial centers would be afforded competitive railroad service under the plan and wanted to know why Syracuse was not considered sufficiently important. They testified that it would be disastrous for Syracuse to be left as a "one-railroad city" when its neighbors and competitors have competitive service. They suggested that the New York Central sell its Auburn branch to the Pennsylvania and that trackage or other arrangements be made to bring the service of the Lehigh Valley to the city, so that it would have three railroads. Charles L. Raper, professor of transportation at Syracuse University, said that Syracuse would be the only city of over 200,000 population outside of New England with only one railroad, while many cities of only 30,000 would have two. Clyde Brown, general solicitor of the New York Central, asked where the line should be drawn, pointing out that Oswego, a city of a little over 20,000 is also demanding competitive service. Dr. Raper said he thought a city of over 100,000 was entitled to competitive service. Mr. Bikle asked one witness if the railroads had not made a "pretty good plan" when they had left out only one city of 200,000 but the witness thought they might have treated Syracuse a little better. The proposal that the N.Y.C. sell its Auburn branch brought an immediate protest from representatives of Auburn, Geneva and Seneca.

The R. B. A. View on Section 15a

By Frank W. Noxon

Secretary, Railway Business Association

OBJECTIONS to the repeal of the clause in the Transportation Act concerning a "fair return" to railway security-owners when stated in the editorial department of the *Railway Age* receive a prominence greater than that enjoyed by the reasons for favoring some such substitute as those now pending before Congress. The substance of the argument has found a welcome in the news department, but lacks the advantage of repetition or of large type or of position at the beginning of the journal or of the trenchant pen so brilliantly wielded by the editor. Conscientious fighter that he is, he is not constrained to state the case for the proposal which he rejects. That he is a good sport, however, all our realm knows, and lest silence following his discussion of March 5 might be misinterpreted, space has been requested and graciously accorded for a summary of the affirmative.

1. *What is now urged was our view in 1920 and has ever since been the basis of our interchanges with other groups.*

No doubt unconsciously, an impression has been given that the substitute rule of rate-making now urged upon Congress by spokesmen for the Association of Railway Executives and for the Railway Business Association represents an idea advanced at this time by others and accepted by the bodies named through a reluctance to be found protesting against something which they would prefer to escape but which appears certain to be done. We saw and said from the outset in 1920 that the mandate for a return at a specified rate per cent would never yield anything but perennial legislative whittling of the rate, litigation, and engrossment of shippers in resistance to a guarantee. Not recapture only but the rate rule itself was deplored and opposed by the railways as well as by ourselves. When it was evident that only on those terms could adequacy of income be inserted in the Act as a new purpose of rate regulation we suspended our remonstrance, like the railways and the National Industrial Traffic League. Then the Railway Business Association exerted what power it could mobilize to restore, with all its imperfections on its head, the Senate rule which the House had stricken out.

In the ensuing years, as it became evident that security buyers were leaning on a statutory promise fated to repudiation because of obstacles irremovable without amendment, conferences and drafting began. As early as 1926 the Railway Business Association was experimenting with language designed to displace the security-owner by the user of transportation as the beneficiary of the rule. With the Traffic League, after protracted collaboration, substantial though not literal concurrence was represented in the Newton bill of 1927, introduced as the basis of discussion. It is superfluous to reveal that there was never a year in which we were unaware of progress toward unity amongst the railway executives in the same direction. Walking into the House hearing room to await my turn I was greeted with the question, "Getting on the bandwagon?" Thereupon a by-stander said to me: "Bandwagon! Why, you folks were pioneers!"

2. *Before the House Committee the witnesses were unanimous.*

In his March 5 article the editor of the *Age* limited the bodies cited to the Association of Railway Executives and the Railway Business Association. As reported in earlier issues no element opposed the substitution of adequate transportation for a "fair return" as the statutory aim of rate-regulation, while those favoring either such substitute or outright repeal of the rule were the Interstate Commerce Commission (unanimous), the National Industrial Traffic League, the Association of Railroad and Utility Commissioners, the Santa Fe Railway, the Association of Railway executives, American Short Line Railroad Association, American Electric Railway Association, Security Owners' Association, Railway Business Association and the 21 standard railroad labor organizations.

The railways and the supply industry, therefore, are not quite in the position of charging the 10 other jurors with obstinacy. The conclusion concurred in is the result of long deliberation, interchange and recognition of experience as dictating policy. What is favored represents informed public opinion.

3. *"Fair return" has failed.*

The *Age* has said so better and oftener than anyone else. Why persist with an experiment which after 12 years more and more intensifies the rage and despair of those most concerned for the future of transportation? Does anybody expect the invention of some device that will make it work? Since it does not work and nobody believes it will work, why not try something else?

4. *A rule, quite as mandatory as the "fair return" rule, is proposed that at least is aimed at workability.*

Cutting out "fair return," with the whole turmoil of valuation law suits, of reversals by the court, of debate over valuation ingredients, of legislative threats and of general agony over an alleged though non-existent and sterile "guarantee," the new rule is intended to release the intelligence, the enthusiasm, the capacity for united effort and the energy of all concerned—shippers, carriers, regulators—and focus it upon the problem of national transportation needs and the requisites for meeting them.

5. *The sole benefit actually realized heretofore from the "fair return" rule will continue under the substitute.*

That sole benefit is that once a month for 12 years the Bureau of Railway Economics has published the net railway operating income of Class I roads, nation-wide and by regions, absolute and per cent, usually showing how far short the figure is of 5¾ per cent.

Under the proposed rule the 5¾ per cent will be out. Out of what? Out of the law? But it isn't in the law now. This Commission whose declination to discharge its initiative as to rate adjustments has brought it condemnation can reduce 5¾ to 4¾ or 3¾ any time it takes the notion. Out of mind? Not in this generation or the next. The American newspaper reader who has any concern in transportation can no more read a report of rail income per cent without thinking of 5¾ per cent than he can look at a fan-

tailed pigeon and not remember Charles Darwin. Once Congress repeals the rule under which the Commission is to announce from time to time a rate per cent of fair return, 5¾ is fixed unrepealable in our minds. Out of the investor's consideration? What investor accepts 5¾ per cent on the so-called "valuation" as a measure of attractiveness in a security? He makes his own standard of return per cent, and computes it on the basis of yield in dollars at the price.

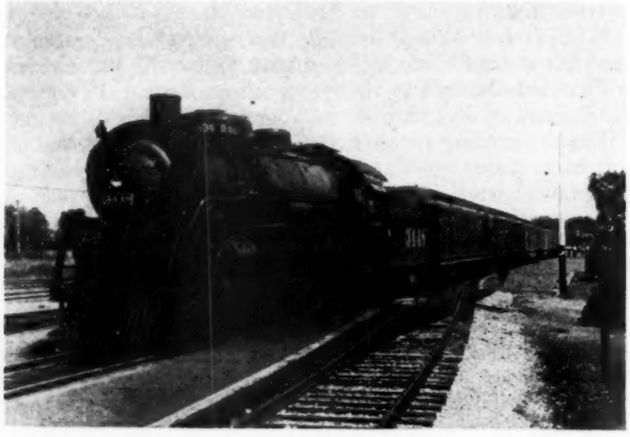
Valuation would be out. Yes, if Congress takes our advice and the advice of the railroads, valuation will be out of the statute, out of the arena of rate discussion, out of the tax levy. But it will not come out of the monthly income statement because it never has been there.

The Bureau of Railway Economics computes income per cent not upon a sum prescribed in the law but on an item from the uniform accounts required by the Commission—"cost of road and equipment." About 90 per cent of the people who follow transportation and investment news probably think the base is the valuation provided for in the Act. It isn't. There is no such valuation. After 19 years all we have is a law suit with which the Commission and the Supreme Court are playing ping pong in perpetuity.

A monthly income statement with computation per cent is of concrete and substantial benefit. If things go well, it serves as a general signal to investors that individual railroads chosen according to temperament are worth a study of earnings and prospects. If things go ill, it serves (1) as a signal to those who need transportation and to the body responsible for rate regulation calculated to give it to them that the revenue situation requires attention; (2) as a yard stick for use of the regional rate committees when such agencies as the new Rate Research Committee periodically docket the revenue status. For all these purposes the monthly statement so long published by the Bureau of Railway Economics—computing income per cent on the cost of road and equipment—can and no doubt will continue to serve as heretofore, to the entire satisfaction of all concerned.

In conclusion it seems fair to remark that if what is now proposed is tried and fails those opposing it can hardly repine, in view of their denunciation of its impotence, over the loss of what we now have as an actual blessing or a bright promise whereas those who favor a new rule are at least exerting themselves to improve a status of intolerable hardship in the present and menace for the future.

* * *



On the Atchison, Topeka & Santa Fe at Waynoka, Okla.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended February 27, which included the Washington's Birthday holiday, amounted to 535,498 cars, a decrease of 37,208 cars as compared with the week before and of 145,723 cars as compared with the corresponding week of last year. This was a decrease of 364,000 cars as compared with 1930. Loading of forest products showed a small increase as compared with the week before. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

Revenue Freight Car Loading

Week Ended Saturday, February 27, 1932			
Districts	1932	1931	1930
Eastern	125,933	156,567	201,661
Allegheny	107,960	142,875	183,657
Pocahontas	35,810	39,979	49,261
Southern	82,097	107,447	143,208
Northwestern	61,308	81,349	110,936
Central Western	78,189	96,961	130,044
Southwestern	44,201	56,043	80,731
Total Western Districts	183,698	234,353	321,711
Total All Roads	535,498	681,221	899,498
Commodities			
Grain and Grain Products	32,627	41,050	45,104
Live Stock	18,375	20,034	25,854
Coal	108,203	125,509	135,475
Coke	5,959	7,782	10,303
Forest Products	19,640	33,213	61,792
Ore	2,833	5,730	8,771
Mdse. L.C.L.	169,733	198,569	251,868
Miscellaneous	178,128	249,334	360,331
February 27	535,498	681,221	899,498
February 21	572,606	713,156	827,560
February 13	562,465	720,689	893,140
February 6	574,756	719,053	886,701
January 29	561,157	719,397	898,835
Cumulative total, 8 weeks	4,515,200	5,707,330	6,977,696

The freight car surplus on February 14 amounted to 727,125 cars, a decrease of 14,739 cars as compared with the number on January 31. The total included 372,667 box cars, 277,538 coal cars, 31,231 stock cars and 16,390 refrigerator cars.

Car Loading in Canada

Car loadings for the week ended February 27 amounted to 43,405 which was an increase over the previous week of 812 cars and which increased the index number to 75.78 as against 72.79 for the previous week, 71.19 for the sixth week and 70.18 for the fifth week. Miscellaneous freight increased by 1,062 cars, other forest products by 318 cars, ore by 181 cars, lumber by 135 cars and pulpwood by 129 cars. Coal decreased by 843 cars, pulp and paper by 227 cars and merchandise by 87 cars.

Compared with loadings for the eighth week in 1931, the total was down 4,099 cars.

	Total Cars Loaded	Total Cars Rec'd from Connections
Total for Canada		
February 27, 1932	43,405	20,975
February 20, 1932	42,593	22,611
February 13, 1932	41,056	22,264
February 21, 1931	47,504	28,661
Cumulative Totals for Canada		
February 27, 1932	326,796	166,715
February 21, 1931	364,677	216,956
February 22, 1930	442,001	290,742

THE HUNGARIAN GOVERNMENT has indefinitely postponed the taking over of the Danube-Save-Adriatic Railway (formerly the Hungarian lines of the Southern Railway Co.), pending the completion of the negotiations with the Vienna central of the railway, according to statements published semi-officially in Budapest. The transfer was originally planned to take place on January 1, 1932.

Detroit Hearings on Fuel Practices

THE Interstate Commerce Commission continued its investigations of railroad fuel practices this week, by opening a hearing at Chicago, following hearings at Detroit on March 1-4. The differences in the prices paid by different railroads for coal purporting to come from the same producers, and, in many cases, from the same mine, were chief centers of interest at the Detroit hearing, and several altercations arose when Attorney M. C. List and Examiner C. W. Berry of the Commission sought to ascertain the reason for the higher prices paid. At the Chicago hearing the National Coal Association was expected to file an appearance.

Testimony at Detroit showed the Pere Marquette buys coal from Ohio, Pennsylvania, some from Kentucky, and a little from mines on the Norfolk & Western in West Virginia, but that most of it comes from mines on the Chesapeake & Ohio. Noting an increase in the proportion of coal obtained from the latter lines, the attorney for the Commission inquired if the road had been instructed by the Van Sweringens to make these purchases, but this was denied and the claim made instead that the Chesapeake & Ohio coal was better coal. Glenn Warner, fuel supervisor, said that, considering the service the Chesapeake & Ohio had always given the Pere Marquette, he preferred that coal to coal on the Norfolk & Western. Fuel is purchased under contracts specifying minimum standards of quality. Mr. Warner admitted that Ohio coal had improved in recent years, but was skeptical of analyses offered purporting to show a close comparison between the coal from West Virginia and that from Ohio and Pennsylvania. Improvement in fuel performance on the Pere Marquette in recent years, Mr. Warner and also R. J. Bowman, vice-president of operation, stated, were chiefly the result of using higher-grade fuel.

Fuel contracts have since 1930 been awarded on the basis of uniform prices in each territory; competitive bidding was abandoned, Mr. Bowman said, to reduce the number of sellers and the attendant cost of handling the business.

Mr. Bowman did not consider that better prices could be obtained for acceptable coal by competitive bids and cited the fact that the cost of the road's coal per gross ton-mile had been reduced materially since 1929. The Pere Marquette adopted the price of $1.40 per ton used by the Erie and the Nickel Plate for purchasing coal on the Chesapeake & Ohio, he said, because it was a reasonable price. Asked why a fixed price 5 cents higher than the bid prices of 1929 was adopted in 1930 in the face of a declining market, he replied that it was to assure good preparation of coal and service. When his attention was called to prices as low as $1.10 paid by other roads for Chesapeake & Ohio coal, he expressed skepticism of the quality secured and also expressed his disapproval of a railroad's purchasing coal below the cost of production. He denied that higher prices were paid to secure commercial traffic.

The Pere Marquette has about 68,000 tons of coal stored at different points on the New York Central, some of which has been on the ground since 1924. Mr. Warner testified that it cost from 45 cents to 70 cents per ton to handle this coal, not counting depreciation and interest, but contended that it has been stored only for security from break-downs in the coal service.

On the Grand Trunk Western, according to the testimony of A. L. Graburn, assistant general fuel agent, all the coal for the lines east of Battle Creek, amounting to 385,000 tons in 1930, is purchased from a mine in Ohio owned by the Canadian National. The price of $1.26 per ton paid is said to be the actual operating cost less any profit the producer makes in selling a small amount of commercial coal. The remainder of the coal, about 130,000 tons, is purchased by competitive bidding, the contracts being awarded to the lowest responsible bidder. Mr. Graburn declared that commercial traffic of producers is "not a factor at all", in allocating fuel contracts, nor does the road attempt to contact with other roads to ascertain if attractive prices are obtained. His attention was then called to the fact that the price of $1.17 per ton paid by the Grand Trunk Western in Western Kentucky was below the prices paid by any other road, but he nevertheless thought that the Grand Trunk Western price was somewhere around the cost of production, although he added that it is not interested in the cost of production.

This road purchased coal on the Norfolk & Western and the Chesapeake & Ohio when there was a shortage, but it does not consider the quality enough better to justify the higher cost. Western Kentucky coal is obtained for the Chicago region because the delivered cost is less than for Illinois coal.

It was shown that the Detroit & Mackinac paid from $1.05 to $1.10 per ton for 2-in. by 4-in. Ohio egg. John McCray, auditor, said the road obtains its coal under yearly contracts awarded on a strictly competitive basis to the lowest responsible bidder among 50 or 60 coal companies allowed to bid. Mine-run coal, he said, would cost less than the prepared coal, but the road purchases the latter to guard against forest fires which have been reduced 90 per cent by the practice. The road unloads its coal at one or two points to save per diem charge on foreign cars, and enforces a rigid inspection at the unloading point.

During the fuel year beginning 1929-30, W. E. Evans, purchasing agent of the Grand Trunk, testified that as purchasing agent of the Detroit Terminal he purchased the latter's fuel on a spot basis, securing the coal from West Virginia at a cost of $1.15 per ton, f.o.b. mine, and $3.75, delivered. This coal was specified, he said, instead of Ohio coal, in order to meet the requirements of the Detroit smoke ordinance. It was then brought out that in the following year when B. A. Aikens, purchasing agent of the Michigan Central took over the purchasing in accordance with an arrangement under which the purchasing agents of the two parent roads alternate every two years, the Detroit Terminal contracted for Ohio coal from mines on the New York Central, paying prices of $1.50, $1.60 and $1.75 per ton. Mr. Aikens said he considered those prices fair at the time and added that he had also bought coal for the Detroit Terminal for $1.40 per ton. W. D. Trump, general manager, said he was not aware that the Detroit Terminal was paying so much more for its coal than other roads, especially the Detroit & Mackinac, but testified that he had assumed the purchasing department since 1931 and has secured reductions of from 25 to 50 cents per ton in the coal purchased.

The Detroit, Toledo & Ironton purchases most of its fuel from mines on the Norfolk & Western operated by the Fordson Company, a subsidiary of the Ford Motor Company. The average price paid for this coal was $1.82 in 1929, $1.73 in 1930, and $1.66 in 1931. Compared with this, the road paid an average market price of $1.55 for its spot coal in 1929, $1.52 in 1930 and $1.39 in 1931.

Attorney List and Examiner Berry repeatedly sought to ascertain the influence of traffic in maintaining the contract which the road had for the Fordson coal and which it appeared had been continued in 1929 without any change in price in the face of declining coal prices. The desire of the road to favor the Fordson Company was admitted, but Mr. Rooney claimed that the higher price paid was justified by the better quality of the fuel obtained and the more dependable service from the producer. He was referred to records purporting to show that the road purchased other coal for $1.35 per ton, but maintained that this was "distress" coal, although Attorney List challenged this designation, in view of records purporting to show that some of it was prepared coal purchased on the basis of bids. A colloquy, in which counsel for the D. T. & I. objected to questions of the examiner as unfair, ended by counsel for the D. T. & I. conceding that the Ford Motor Company was the largest shipper on the D. T. & I.

The Detroit & Toledo Shore Line virtually relies on "distress" coal in order to supply its requirements, purchasing all kinds of coal indiscriminately as it is offered day by day. Nut coal is purchased for switch engines in Detroit in order to comply with the smoke ordinance, but with this exception the different coals, purchased at prices ranging from 60 cents to $1.50 a ton and which came from Ohio, West Virginia and Pennsylvania, are dumped into the same pockets. Notwithstanding this unusual practice, the road reported a fuel performance of 70 lb. per 1,000 g.t.m. in 1929, 71 in 1930 and 76 in 1931.

The Toledo Terminal uses coal from the Pittsburgh No. 8 seam in Ohio, most of the coal, the records showed, being obtained from Pickands Mather & Company and the G. M. Jones Company. The Akron, Canton & Youngstown purchases all its coal on contract and at prices which appear to be lower than most roads paid from the same source of supply.

Purchase records of the Erie brought out that this road obtains fuel from mines located on several roads, including the Chesapeake & Ohio, but that some 700,000 tons was obtained from the company-owned mine which sells about 80,000 tons of commercial coal, consisting chiefly of screenings from the Erie coal. It was represented that the Erie paid $1.90 per ton for coal from this company as compared with a cost of production around $1.65 a ton. The slack from these mines was sold for $1.09 a ton. The price of $1.40 paid for all coal from the lines of the Chesapeake & Ohio was the same price paid by other Van Sweringen roads and was compared by Attorney List with a price of $1.15 paid for coal on the Chesapeake & Ohio by the Detroit & Toledo Shore Line. L. L. White, assistant to the president, defended the higher prices paid principally on the ground that they were not considered out of line with prices paid by other roads or with the cost of production in the various districts.

The New York, Chicago & St. Louis obtains its coal from mines in West Virginia, Pennsylvania, Ohio, Kentucky, Illinois and Indiana, paying prices ranging from $1.25 for West Virginia coal mined on the Baltimore & Ohio to $2.30 per ton for coal mined in Illinois. About 250,000 tons, or 25 per cent of its requirements, are purchased under long term contracts with two firms, while the remainder is allocated on a basis of monthly orders. Firms with the largest orders included Koppers Coal Company, City Ice & Fuel Company, Ford Collieries, Fleming Coal Company, and the Hanna Coal Company. It was brought out that this road purchased 247,000 tons of Pittsburgh No. 8 coal under a contract with the Wheeling & Lake Erie Coal Company through the Hanna Coal Company, paying $1.75 per ton on a long-term contract for mine-run coal, while the same mine was supplying mine-run coal to the Pere Marquette at $1.65 per ton, to the Erie at $1.65, and to the Wheeling at $1.50, and that the Nickel Plate was buying other coal on the Wheeling & Lake Erie for $1.55 a ton. The examiner was also interested in figures purporting to show that at several points on the line coal from different fields, purchased at different prices, was mixed. It was alleged, for example, that at Lima, Ohio, coal from the Baltimore & Ohio, costing $2.54 delivered, was mixed with coal mined on the Chesapeake & Ohio, costing $3.11 delivered, and that a 42-cent difference existed between the coal received from the Baltimore & Ohio and coal from the Montour at Cleveland.

Interest in the Wheeling & Lake Erie fuel purchasing lay chiefly in the disclosures that this road was paying less for coal produced on its mines than other roads were paying for coal from the same mines, the Wheeling & Lake Erie thus affording an exception to the usual policy followed by the coal-producing roads.

71 Class I Roads Had Deficits in 1931

WASHINGTON, D. C.

THE net income of the Class I railways for 1931, after taxes, rents, interest and other charges, was $141,160,935, compared with $527,704,007, for 1930, a reduction of $386,543,072 in the amount available for dividends, according to a summary made public by the Bureau of Statistics of the Interstate Commerce Commission of the tabulations for the 1931 issue of its

Summary Compiled from Preliminary Reports of Capitalization and Income of Class I Railways (excluding switching and terminal companies) for the Years ended December 31, 1931 and 1930

Item	1931	1930 Restated	Increase or decrease
Miles of road owned (single track)	172,408.35	172,607.64	**199.29
Average miles of road operated *	242,223.98	241,990.35	233.63
Common stock	$6,367,397,599	$6,336,650,975	$30,746,624
Preferred stock	1,881,910,664	1,905,549,524	**23,638,860
Total capital stock	8,249,308,263	8,242,200,499	7,107,764
Funded debt unmatured	10,686,972,279	10,693,650,393	**6,678,114
Other long-term debt	359,290,846	349,215,793	10,075,053
Total long-term debt	11,046,263,125	11,042,866,186	3,396,939
Grand total capitalization	19,295,571,388	19,285,066,685	10,504,703
Railway operating revenues	4,188,343,237	5,280,829,680	**1,092,486,443
Total maintenance expenses	1,347,561,343	1,724,575,971	**377,014,628
Maintenance of way and structures	530,626,391	705,391,115	**174,764,724
Maintenance of equipment	816,934,952	1,019,184,856	**202,249,904
Railway operating expenses	3,223,567,417	3,930,605,754	**707,038,337
Railway tax acruals	303,560,479	348,507,158	**44,946,679
Uncollectible railway revenues	891,138	1,048,900	**157,762
Railway operating income	660,324,203	1,000,667,868	**340,343,665
Equipment and joint facility rents	*d 134,645,951*	*d 131,914,367*	**2,731,584
Equipment rents	*d 99,199,503*	*d 99,744,912*	545,409
Joint facility rents	*d 35,446,448*	*d 32,169,455*	**3,276,993
Net railway operating income	525,678,252	868,753,501	**343,075,249
Other income	298,077,860	349,659,764	**51,581,904
Total income	823,756,112	1,218,413,265	**394,657,153
Rent for leased roads	143,293,841	164,120,405	**20,826,564
Interest on funded debt	494,706,521	490,207,512	4,499,009
Interest on unfunded debt	16,756,898	12,430,634	4,326,264
Total interest accrued	511,463,419	502,638,146	8,825,273
Other deductions	27,837,917	23,950,707	3,887,210
Total deductions	682,595,177	690,709,258	**8,114,081
Net income	141,160,935	527,704,007	**386,543,072
Dividend appropriations of income and surplus:			
Common	273,788,431	420,982,239	**147,193,808
Preferred	54,654,761	85,990,649	**31,335,888

* Including trackage rights.
** Decrease.
d Deficit or other reverse item.

annual publication entitled, Preliminary Statement of Capitalization and Income. The comparative figures for 1930 have been restated to cover the same railroads as represented in the 1931 totals.

The total dividend appropriations from income and surplus together amounted to $328,443,192 in 1931, compared with $506,972,888 in 1930. The declaration of unusual dividends by subsidiaries to improve the income showing of parent companies, a conspicuous feature of 1930 reports, appears to the extent of only $9,155,080, in the 1931 reports.

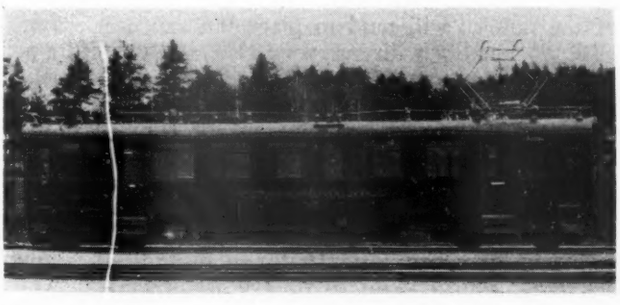
Operating revenues were $1,092,486,443 less in 1931 than in 1930. Expenses declined $707,038,337, and taxes declined $44,946,679. The net railway operating income for 1931 was $525,678,252, a decline of $343,075,249 from that of 1930. Other income in 1931 amounted to $298,077,860, a decline of $51,581,904 from the corresponding 1930 figures. The accruals for rent for leased roads were $20,826,564 less in 1931 than in 1930, but interest charges increased $8,825,273.

"In spite of the drastically reduced earnings, the total income was more than the fixed charges," says a statement issued with the figures. "Since the close of 1931 there has been a small increase in freight rates and a 10 per cent reduction in the pay of railway employees. If these changes had been in effect during the year 1931, the rents and interest would have been covered by a much wider margin even if allowance be made for the probability that a part of the pay-roll saving would have been used for more nearly adequate maintenance work.

"In the preceding paragraphs the earnings and expenses have been considered for the Class I railways as a whole. Some of them had a relatively larger net income than the above indicated Class I total, while 71 companies (not counting those in receivership on December 31, 1931) ended the year 1931 with a red figure shown as net income. The aggregate of these deficits below fixed charges amounted to $90,745,661, not including the deficits of the roads in receivership at the close of the year. In arriving at this total, each operating road was taken as an independent unit. If the net incomes of parent and subsidiary lines are combined, the total deficiency falls to $71,204,239. If the Canadian and Mexican company subsidiaries are also excluded, this figure becomes $60,910,325."

The grand total capitalization at the end of the year was $19,295,571,388, including $8,349,308,263 of stock and $11,046,263,125 of long-term debt. The increase in capitalization during the year amounted to only $10,504,703.

* * *



Motor Car, Used on the Nordmark-Klarälven Railway in Sweden, Which Receives Power Either from a 16,000-Volt Contact Line or from a Gasoline Engine-Driven Generator—The Car Has Two Motors, Each Rated 260-Volts and 90 Horsepower—The Motors Are Suspended from the Underframe and Drive One Differential Axle on Each Truck

Labor Organizations Ask Compulsory Pension System

WASHINGTON, D. C.

A PLAN for a system of compulsory retirement insurance for railway employees, to be administered by a government board and supported by equal contributions of the railway companies and their employees, is proposed in a bill drafted by a committee of the Railway Labor Executives' Association introduced in Congress on March 3 by Senator Wagner, of New York, as S.3892, and Representative Crosser, of Connecticut, as H.R. 10,023. A somewhat similar bill introduced recently by Senator Brookhart, of Iowa, was later withdrawn by him. The bills were referred to the committees on interstate commerce.

The plan proposed would take the place of the pension systems now maintained by many railroads, which have been criticized by the labor organizations on the ground that they do not set up a legal obligation on the part of the companies, and under which the Interstate Commerce Commission has repeatedly refused to allow the roads to make charges to operating expenses for the purpose of setting up a reserve for accrued pension liability, in the absence of a contractual obligation to use the fund for pension purposes.

The committee which drafted the bill, with the assistance of Donald R. Richberg as counsel and Henry R. Corbett, of Chicago, as actuary, was composed of J. G. Luhrsen, president of the Train Despatchers' organization, E. J. Manion, president of the Order of Railroad Telegraphers, and B. M. Jewell, president of the Railway Employees' Department of the American Federation of Labor. Provisions of the bill were explained in a statement issued by the committee as follows:

"The bill provides that 'in order to promote and increase the safety and efficiency of interstate transportation service' all carriers and their employees shall make equal contributions, based on wage payments, sufficient to give employees on retirement from service an annuity equal to 2 per cent of the employee's average annual compensation multiplied by the number of years of his contributory service.

This will be the normal retirement insurance provided for employees.

"As a special provision for railway employees of advanced years now in service, who will be eligible to retirement within a few years, the bill provides a special contribution by carriers and employees to the establishment of a 'Prior Service Pension Fund,' out of which an additional pension will be paid to employees whose years of 'contributory service' will not provide a large enough annuity for a decent livelihood after retirement.

"The bill creates a 'Railway Employes' Retirement Insurance Board' composed of five members appointed by the President; two on nominations by the employees, two on nominations by the carriers, and the fifth appointed without recommendation by either party on the basis of 'mature experience in financial and insurance matters.'

"All expenses of administration of the act are to be paid out of the funds established by the contributions of the carriers and employees, imposing no expense whatsoever on the government.

"It is provided that payments shall be made into and out of the treasury of the United States by direction of

the board, and the treasurer of the United States is authorized, with the approval of the secretary of the treasury, to invest the reserve funds in the obligations of the United States.

"Employees are eligible for retirement on attaining the age of 65 years, or on completion of 30 years of contributory service.

"The percentage of contributions from wage payments necessary to establish the funds out of which to pay retirement insurance and prior service pensions are set forth in the 'schedule of standards' in the bill, but are subject to revision from time to time by the board as may be found necessary in order to carry out the objects and purposes of the act.

"Briefly, the bill provides for step-rate contributions to the Employes' Retirement Insurance Fund beginning with 2 per cent for employees of ages 21 to 34, increasing gradually to 5 per cent for employees of 50 years and over.

"The prior service pension contribution is fixed at 1½ per cent.

"In addition to the retirement insurance and pension provisions, the bill also grants a disability benefit for any employee becoming totally disabled prior to becoming eligible for retirement.

"The bill also provides that on the death of an employee, either before or after retirement, his legal representatives shall be refunded the amount of his own contributions, with 3 per cent interest, less any payments made to him prior to his death.

"There are numerous extensive pension systems in force on various railroads, these being, however, generally of the voluntary, non-contributory type. Provision is made in the bill for the substitution of the retirement insurance and pension system provided in the bill for all existing voluntary pension systems with the provision that any existing obligations of a railroad in excess of the requirements of the act shall be carried out at the individual expense of that railroad.

"The bill provides the detailed machinery necessary for carrying out the foregoing general requirements. Its general purpose and intention may be stated to be not merely a humanitarian provision of old-age security for railway employees but the protection and improvement of interstate transportation service which will result from:

"(1) Encouraging competent employees to remain in the railroad service as a life occupation.

"(2) Retiring employees after the years of highest efficiency have passed by, with an appropriate provision for a livelihood in old age as the reward of long service.

"(3) The resulting maintenance of a high standard of safety and efficiency through a vigorous, satisfied personnel, encouraged to render the highest grade of service with a reward of old age security not available in many other employments."

Senator Wagner and Representative Crosser united in a public statement supporting the measure, saying, in part:

"The bill introduced is the product of more than two years' study and investigation by the Railway Labor Executives' Association, which is composed of the chief executives of the 21 Standard Railway Labor Organizations. The constant decrease of employment on the railroads, with a permanent reduction of at least 250,000 employees in the last few years, and a probable temporary reduction since 1929 of approximately 500,000 employees, has created a widespread demand among railway employees for some form of old-age security.

"The increasing average age of men in railroad service because of this reduction in employment has put a severe strain on pension systems maintained by some of the organizations and on the pension systems maintained by many of the railroads.

"We are informed that at the recent wage conference in Chicago between the railroads and these labor organizations it was agreed that committees representing management and employees would seek to work out an agreement on legislation of this character if possible.

"The provisions of the bill now introduced may naturally be improved as intelligent and sympathetic criticism is applied to them. The representatives of management and employes may themselves agree on desirable changes."

Under the terms of the bill it would apply not only to railway employees but to those of express or sleeping car companies or "other operator of transportation facilities subject to the Railway Labor Act; and any subsidiary or auxiliary transportation service used by or operated in connection with such a carrier."

Changes in the percentage rates of contributions, if they should turn out to be too low or too high, could be made by the board with the approval of the Interstate Commerce Commission. The rates stated in the bill would greatly increase the amounts now paid by the railways for pensions. In 1930 the total pension payments charged to operating expenses were $28,872,875. The minimum rate of 2 per cent applied to the payroll for that year would amount to $44,480,000.

Representatives Kellar, of Illinois, and Arentz, of Nevada, have also introduced railroad pension bills.

Railroads Ask Motor Transport Regulation

WASHINGTON, D. C.

FEDERAL regulation of motor buses and trucks, including both common carriers and charter carriers engaged in transporting persons or property for hire in interstate commerce, was urged before the Senate interstate commerce committee on March 8 by R. H. Aishton, chairman of the executive committee of the Association of Railway Executives. Mr. Aishton, appeared as the first witness for the railroads in connection with hearings on the bill introduced by Senator Couzens, of Michigan.

"We believe," said Mr. Aishton, "that regulatory legislation as proposed in this bill, if it can be amended to meet the suggestions we make, will be in the interest of the public; will tend to place the rail carriers on a basis of equality with everyone else, and will fully protect and encourage the continued operation of those who under regulation, desire to transport persons or property on our public highways for compensation or hire."

"We believe and urge that opportunity should be given for rail carriers to engage, either directly or through subsidiaries, in motor vehicle service on the highways on equal terms with all others and without discrimination in favor of or against other transportation agencies in the same field. This should include the right to purchase, equally with all others, lines then in operation, as well as to establish new lines, and necessary modifications of the anti-trust laws should be made. The regulation of motor vehicles here recommended is proposed with a full appreciation of its ap-

plication to motor vehicle operations by railroads as well as to such operations conducted by others."

A. R. McDonald, a member of the Wisconsin commission and chairman of the legislative committee of the National Association of Railroad and Utilities Commissioners, and J. Paul Kuhn, member of the Illinois commission and chairman of the association's special committee on motor vehicle legislation, presented the views of the state commissioners on the Couzens bill on March 3. Mr. McDonald said the association generally approves the Couzens bill but felt that it should go farther than it does in some respects. He also expressed approval of the proposed report by Attorney-Examiner Leo J. Flynn, of the I. C. C.

Thomas H. McDonald, chief of the Bureau of Public Roads, testified on March 7, saying that he would not advocate passage of the bill as it stands because it contains some "dangerous things," but that he would like to see provision made for obtaining the information which would be collected as the result of provisions of the bill. He said one dangerous feature was the provision by which states would be given authority by a federal law to "double-tax" interstate commerce. A principal feature of his testimony was a showing of the comparatively small percentage of motor truck transportation that would be affected by federal regulation. He said that if all interstate operations by trucks were to be controlled, approximately 7 per cent of the total truck movement would be involved, affecting, according to the 1930 census, 243,700 trucks, of which more than one-third would be privately owned and operated trucks.

For the purpose of providing for the sound development of the highways themselves as well as the economic use of the motor vehicle in interstate commerce, he said, it is desirable:

"First, to set up federal specifications fixing the maximum weights and sizes and other physical details of the motor vehicles to be used.

"Second, to require reciprocity between the states for all private and casual operation of motor carrier vehicles interstate, and a composite license fee or other charges for common carriers operating over fixed routes interstate, whose total shall be comparable with that of similar vehicles used in the same district in purely intrastate commerce.

"Third, while the studies which have been made are indicative of the relation of road costs to total vehicle taxation, they are not finally determinative or conclusive. There is too wide a range between all conditions in the various sections of the United States.

"There should be undertaken a thorough and comprehensive study of this question in which both the federal government and the states would participate."

Proper federal regulation over motor vehicles is necessary, not only in the public interest but also as a step towards bringing about a fair basis of competition between the various agencies of transportation and the co-ordination of all forms of transportation in this country, Dr. C. S. Duncan, economist of the Association of Railway Executives told the committee on March 8.

"Railroad service is indispensable to industry, commerce and public defense. One obvious reason is that there is no other means of transportation which offers facilities to meet fully all of the needs of the public for transportation service. Neither as to passenger traffic nor as to freight traffic do motor vehicles on the 700,000 miles of surfaced highway pretend to offer such complete, dependable and comprehensive service," Dr. Duncan said in part.

"The railroads are not advocating regulation as a means of legislating motor vehicles off the highways or as a means of forcing an increase in all the rates, fares and charges of motor vehicles to the level of railroad rates, fares and charges. This is obvious from the fact that the rail carriers are asking for adequate authority themselves to operate such facilities.

"What the rail carriers desire is regulation as a means of placing motor vehicles operation as a whole on a sound economic basis to the end that the proper sphere of operation of the railroads and the motor vehicles can be intelligently determined. When the proper sphere of operation is determined, it will result in the retirement of either the railroads or the motor carrier from those fields in which they can not compete at the rates or can not give the service provided by the more efficient carriers.

"Regulation would require each carrier to operate on a sound basis and prevent either carrier from competing destructively for such traffic as the other could carry more economically and efficiently. The result would be an advancement of the best interests of the railroads, the motor carriers and the public. Whether or not it would mean the return of any traffic to the railroads can not now be determined with any degree of certainty. The railroads believe that proper regulation of motor vehicle transportation service would probably mean the return of some traffic to the rails. They are advocating regulation, however, more particularly in order that unrestrained and unfair competition of motor vehicles may not lead to such further losses of traffic as to impair the ability of the rail carriers to supply the efficient service required by those who of necessity must depend on railroad transportation for essential 'full community' service, for national protection, security and welfare.

"Taxes on all motor vehicles fall far short of paying highway expenditures. In these taxes are those paid by the 23 million privately owned passenger cars operated throughout the country largely on a non-commercial basis. These taxes also include practically all moneys paid by motor vehicles operated within city limits and not using the highways. At least 40 to 50 per cent of these taxes paid should, therefore, be deducted if the amount paid by the user alone is sought.

"Total disbursements for the period from 1921 to 1930, excepting 1922, for which no information is available, paid by state and local authorities for highway purposes, totaled $11,142,259,000. Special taxes on motor vehicles for this period were approximately 36.3 per cent of disbursements. It is obvious from these figures, therefore, that the government has paid out of general tax funds approximately 63.7 per cent of the construction and maintenance costs of highways used by motor vehicles.

"On the other hand, the railroads have fully met all roadway and maintenance costs and have paid taxes on their roadway. The rail carriers have also had to expend more than 25 million dollars annually for safety protection at railroad highway grade crossings and for their elimination by overhead or underground passages which results in capital expenditures with little or no productive value but making for safer operation of highway transportation."

Dr. Duncan told the committee that over 17,000 railroad stations have been closed since 1917.

Whereas Director MacDonald had based his calculations largely on the state highway system, saying that "the local roads are necessary to serve the land but are not necessary from the standpoint of interstate traffic," Dr. Duncan pointed out that he had used the taxes paid

by the users of the local roads and city streets to show that motor vehicles are paying a large share of the cost of the roads. He also said that most expert opinion is at variance with that of Mr. MacDonald that comparatively little additional cost is involved in building roads adequate for commercial trucking and cited various reports to show that heavy buses and trucks above three tons or the equivalent, constituting about two per cent in number of total vehicles, should pay all additional costs resulting from road destruction on highways too light for such traffic and all additional costs of construction and maintenance of roads built for them. He said the apparently contrary opinion stated by the Director of the Bureau of Public Roads was on the assumption that only pneumatic tires or balloon tires would be used on motor vehicles, whereas solid tire trucks are plying all highways throughout the country. The Bureau's estimate of the small proportion of interstate traffic, based on a count taken in 11 western states, he said, is not fair because both the mileage and ton-mileage of interstate trucks is much greater than that of trucks used locally and than would be indicated by a mere count.

Safety Record of the Pennsylvania

THE Pennsylvania, reporting the activities of its Safety Department for the calendar year 1931, shows a casualty rate of 4.5 per million man-hours worked, a reduction from the record of 1927 of 76 per cent. For five years the ratios were:

FIVE YEARS' SAFETY RECORD

Year	CASUALTIES TO EMPLOYES PER MILLION MANHOURS
1927	19.1
1928	13.0
1929	10.2
1930	6.2
1931	4.5

Reduction Under 1927—76%

These figures, with data concerning the winners of the trophies which are awarded to regions, general divisions, divisions and departments of divisions have been printed on a large poster which is displayed in conspicuous places throughout the System.

This poster shows also a miniature of the bronze trophy, for the year now recorded, which is 19 inches wide and 16 inches high. Nineteen copies of this trophy go to the 19 units standing highest in the lists for divisions, etc.; and a twentieth trophy, in silver, is awarded to the region showing the best rate.

P.R.R. Safety Trophy, 1931

The total, for the year, of man-hours worked was 300,837,958. The best record for a Region was 3.56 casualties per million man-hours, made by the Western region. The best general division was the Northwestern 3.36.

The divisions are grouped, A. B and C. Group A includes the larger divisions, those reporting 15,000,000 or more man-hours; Group B, 5,500,000 up to 15,000,000; Group C, those reporting less than 5,500,000 man-hours. The best record in Group A was shown by the Long Island Railroad, 3.85. The best in group B was that of the Atlantic division (New Jersey) 1.54; and the best in Group C was that of the Grand Rapids division 0.37.

In addition to these records, taking in all departments, the casualties for each of five departments are tabulated separately: maintenance of way; maintenance of equipment; station department; freight and yard train service; engine service (steam). The winners, receiving trophies, as shown by these tables, were:

M.W.	Pittsburgh Division	A	2.51
	Atlantic Division	B	0.00
	Indianapolis Division	C	0.00
M.E.	Middle Division	A	1.53
	Erie & Ashtabula Division	B	0.86
	Schuylkill Division	C	0.00
Station	Pittsburgh Division	A	2.75
	Atlantic Division	B	0.00
	Renovo Division	C	0.00
Ft. & Yd.	Eastern Division	A	11.88
	Erie & Ashtabula Division	B	4.00
	Grand Rapids Division	C	3.59
Engine	Philadelphia Terminal Div.	A	3.39
	Atlantic Division	B	1.63
	Delmarva Division	C	0.00

Perfect records were made by different departments on a number of the smaller divisions. For example, the Schuylkill division, M. E. department, was one of four units which had perfect records, this division taking the trophy because it had worked a greater number of man-hours than either of the other three. President W. W. Atterbury, congratulating the winners and also expressing due appreciation of an excellent performance, tells the employees that, "It is apparent that through the faithful observance of all rules and safe practices, it is possible to prevent injuries to the point of almost total elimination." The safety contest will be continued through 1932 and all are urged to strive toward the idea of total elimination.

New Paving Asphalt

THE Headley Emulsified Products Company, Philadelphia, Pa., has added to its line of emulsified paving and paving repair asphalts, a new product, known as Headley Emulsified Asphalt No. 3, which is intended specifically for the construction, resurfacing, treatment and maintenance of driveways and truckingways around station grounds, team tracks and freight yards. This new product, which is an asphalt emulsion of approximately 60 per cent asphalt content, is used in the penetration type of construction, and is applied cold with either auto pressure distributors or hand sprays. It has a proper consistency to afford deep penetration and it can be applied effectively to a wet or damp surface. Like other Headley products, No. 3 asphalt is shipped in tank cars or steel drums as desired.

American Railway Engineering Association Preconvention Issue

PROGRAM
Thirty-Third Annual Convention
Palmer House, Chicago

Tuesday morning—9 A. M.

President's address, L. W. Baldwin, president, Missouri Pacific
Reports of secretary and treasurer
Reports of Committees on:
- Uniform General Contract Forms
- Iron and Steel Structures
- Wooden Bridges and Trestles
- Clearances
- Electricity
- Signals and Interlocking

Tuesday afternoon—2 P. M.

Reports of Committees on:
- Yards and Terminals
- Shops and Locomotive Terminals
- Standardization
- Maintenance of Way Work Equipment
- Rules and Organization
- Grade Crossings

Tuesday evening—8 P. M.

Reports of Committees on:
- Rivers and Harbors
- Roadway
- Stresses in Railroad Track
  - (1) Some features of the rail joint
  - (2) The desirability of reducing to a minimum the present variability factor in track

Wednesday morning—9 A. M.

Reports of Committees on:
- Economics of Railway Operation
- Economics of Railway Labor
- Water Service and Sanitation
- Buildings
- Masonry
- Waterproofing of Railway Structures
- Records and Accounts

Wednesday noon

Association Luncheon—Red Lacquer Room
- Address by Claude R. Porter, chairman, Interstate Commerce Commission

Wednesday afternoon—2 P. M.

Reports of Committees on:
- Ballast
- Ties
- Wood Preservation
- Rail
- Track

New Business
Installation of officers
Adjournment

BY ACTION of its board of direction, the American Railway Engineering Association will confine its convention to two days, March 15 and 16, and otherwise curtail its program this year. The National Railway Appliances Association has abandoned its annual exhibit which had been held at the Coliseum, Chicago, concurrent with the convention of the A. R. E. A. for 22 consecutive years.

Because of this drastic curtailment of activities which have been the occasion of the publishing of the March Daily issues of the *Railway Age* for 22 consecutive years, it has been decided also to eliminate these March Daily issues this year. In lieu thereof, the report of the A. R. E. A. convention will be presented in the regular weekly issue of the *Railway Age* of March 19, and will include abstracts of the committee reports and of the discussions from the floor and other features of the convention.

As a further means of filling the gap created by the absence of the Dailies, we present in the following pages discussions of the current status of railway construction and of maintenance of way, the outlook for the future in these activities, and the place of the A. R. E. A. in this picture. Added to this are several pages presenting current developments in appliances and materials employed in this field.

The American Railway Engineering Association

The American Railway Engineering Association has completed a third of a century of useful service. Considering the place it now occupies in the initiation and co-ordination of practices in its chosen field, one wonders why the need for its being was not sorely felt long before it was organized, at the close of the last century.

The most valid explanation for this is to be found in the fact that there was formerly a rather well defined line of demarcation between the "technical" men or professional engineers on the one hand, and the "practical" railroad men on the other. Because the former manifested their professional status by allegiance with the American Society of Civil Engineers, that organization functioned for many years as the only medium for the exchange of ideas and experiences among engineers in railway service. One important result of this was the development of the A.S.C.E. series of rail sections. Commendable as were these and other professional actions of railway men that emanated from this affiliation, they failed to fill the real need—that of an organization of railway men concerned with engineering problems, as contrasted with an organization in which the members were identified primarily by their status as engineers. And if there is one service which the A.R.E.A. has rendered its members that is of greater value than any other, it is that of instilling in their minds that they must be *railroad* men rather than professional men.

Application of Engineering Principles

Emphasis on this attitude has detracted in no way from the standing of the engineer in railway service. On the contrary, it has strengthened his position, because it has increased his perspective and his availability for executive positions in the service. Furthermore, it has gradually built up a standing for the association in the eyes of railway management, until the services of the engineering association are eagerly solicited today in all matters where they should be and are of value.

One evidence of this is to be seen in the appropriation of funds by the A.R.A. for the conduct of investigations of various important technical problems under the auspices of the A.R.E.A., including the joint investigations of stresses in railway track and of transverse fissures in rails. It must not be inferred from this that the association is designed to function primarily as an organization for the administration of original research. Its primary responsibility is the co-ordination and application of the results of research and accumulated practical experience for the purposes of formulating rules of good practice in the efficient conduct of railway transportation. It is in this field that we find the most significant index of the association's advancing position in railway affairs.

Broadening Scope of Activities

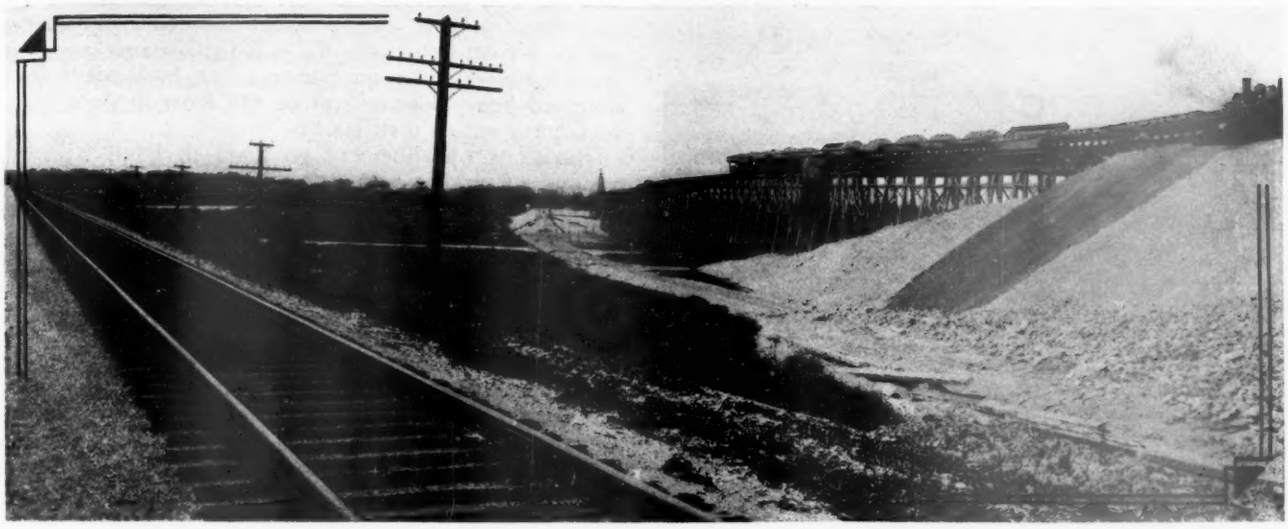
Early in the life of the A.R.E.A., the fear was not infrequently expressed that it would soon exhaust all of the subjects that could properly be submitted to its committees for study. Those who held this view overlooked two important considerations; the constantly increasing horizon created by scientific discovery and the opportunity for broadening the scope of the association's field of usefulness. With respect to the first of these, no comment is needed other than to cite the continued value of the work of the committees on "Track" and "Roadway" which were among the first to be organized. With respect to the second, it is only necessary to point to the enterprise of the board of direction in approving the organization of new committees to meet the growing complexities of railway problems. Its judgment has been attested by the value of the constructive work which these newer committees are doing in meeting the problems imposed by the new developments and changing phases of construction and maintenance. How extensive these changes have been is set forth in the two articles that appear on pages immediately following.

A Unique Organization

The A.R.E.A. is unique. Maintaining its original status as an organization of individuals, it functions in effect also as a division of the A.R.A. Holding its conventions with an unbroken record of 33 years in one city and at a time of the year entirely unsuited to outdoor diversions, it has an enviable reputation for "tending to business." It is outstanding in the sincere interest taken by the rank and file of its membership and by reason of the fact that more than 1000 of its members participate in committee work. Its committees are large, and owing to their subdivision into subcommittees which prepare individual reports, the material presented is in reality the work of 160 individual committees rather than of the 27 regular and special committees on the official list.

It is not to be inferred from the above, that the A.R.E.A. may not become the victim of the smug self-sufficiency that often attends an outstanding record of success. The only symptom thus far evidencing an approach of such a condition, however, is what appears to be a growing reluctance of the members to participate in active and spirited discussion of the committee reports at the convention.

In addition to the valuable work of the association within the scope of any action which it can take as an association, there are even greater opportunities for increasing its usefulness. These are to be found in a more general adoption by the railways of its rules of practice and specifications for workmanship and materials, and in a liberal support of those few projects for research which it has undertaken.



Grade Reduction Projects Have Been Important Items in Construction Programs

Looking Ahead in Construction

What types of facilities are being required to meet the newer demands of transportation?

WHAT will be the trend in railway construction during the next few years? Changing conditions in industry and in methods of distribution are bringing new problems in railway operation with a rapidity that is bewildering. Since the solution of many of these problems depends largely on the type, the location and the design of the facilities which must be provided for moving the traffic, and often on the rapidity with which they can be developed and completed, it is important that engineering officers be informed currently of the developments which are taking place, and that they study the effects which these changes are producing in operating methods and on the facilities which they must design to improve operation, for it is only by so doing that they will be in position at all times to suggest improved methods and to prepare plans and advise their operating officers with respect thereto in advance of their needs.

Included among these changes are new forms of competition in transportation which could scarcely have been foreseen as recently as two decades ago and which have become acute only within recent years. Yet today they intrude themselves into nearly every consideration of railway traffic and operation. In addition, the general public is demanding higher standards of service than formerly, and this is also exerting a definite influence on operating methods.

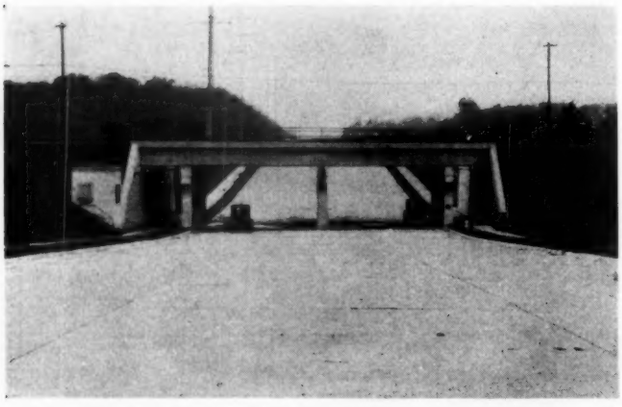
Since railway construction is so closely linked with the needs of railway operation, it follows that these developments cannot fail to have a profound effect on the types of construction which will be demanded in the years that are immediately ahead. Even now, the day of the full-tonnage drag, which could barely pull over the summits of the ruling gradients, is past. Its place has been taken in large measure by freight trains that run with the regularity of passenger trains on schedules that leave no room for doubt that time is a highly important element in their operation.

This does not mean that tonnage is being lost sight of, for in many respects it is assuming an even more important position than formerly. It does indicate very clearly, however, the fundamental changes which are taking place in railway operation and in the viewpoint of operating officers. While the need for economy in operation is more highly appreciated now than ever before, the necessity for speed and regularity of service is so great that they are paramount. These are the considerations, therefore, which may be expected to dominate the trend in railway construction in the near future, although there are also other factors that must be given considerable weight, which will be discussed later.

Grade Revision

In the past, the more important items in the construction program of many roads have included grade-reduction and revision-of-alinement projects. It is true that much work of this character has now been completed, but despite this fact, similar conditions of grade and alinement await attention at many other points.

What is the future trend likely to be with respect to grade reduction and line revision? Obviously there are places where grade reduction will be necessary in the future. It is equally obvious, however, that more searching inquiry will be made to determine whether there may not be other means of obtaining the desired improvement in operation without the necessity of making the large investment which is often required to reduce grades.



Public Demand for Grade Separation Is Insistent

To illustrate, grade reduction was proposed as the remedy for traffic congestion and excessive overtime on a certain district. Because the traffic would not warrant spending the $15,000,000 which the work was estimated to cost, a number of the largest type of locomotives were purchased for this district and they now accomplish the same result as the proposed grade reduction.

Formerly, maximum gradients of 0.2 or 0.3 per cent were the objectives of many grade reduction programs. More recently, the development of heavier power and the growing necessity for fast and dependable freight schedules have changed the point of view with respect to such low gradients. As a result, speed and the value of momentum grades will be given greater consideration in planning future grade-reduction projects. Electrification may also have a large ultimate influence in grade revision, although it is more likely to be applied on those lines where the physical conditions, as in mountainous territory, make a reduction of the heavy gradients impracticable.

As an illustration of the difference in the viewpoint with respect to gradients, two competing lines, each of which handles a large volume of highly competitive perishable freight, have recently completed extensive grade-reduction programs. One of these roads adopted a maximum gradient of 0.7 per cent, and included momentum grades where practicable. As a result of this work, the train loading was increased, the scheduled time was materially shortened and the number of train miles was greatly reduced. The other line, similarly situated with respect to topography, decided on a maximum gradient of one per cent and developed a system of momentum grades almost to the practicable limit of the possibilities, thus obtaining a similar improvement in train operation, but at a relatively smaller outlay for construction. To still further increase their train loadings and reduce train miles, both roads have assigned heavy locomotives of the most modern types to the respective districts.

Multiple Track Construction Is Declining

Revisions of alinement go hand in hand with revisions of grade. As operating speeds continue to increase, however, it may be expected that line revisions to reduce the amount and rate of curvature, or to shorten the line, will be made more and more, independent of grade considerations.

New Methods Reduce Multiple-Track Construction

It has not been many years since additional main tracks were considered to be the only means whereby the traffic capacity of a line could be increased, assuming that grades were satisfactory and that the locomotives in service had ample tractive power. Recent important developments in the signaling field have, however, made it possible, at relatively low cost, to increase the traffic capacity of both single and multiple-track lines to such an extent that for the last few years, despite a continued increase in traffic up to and including 1929, there has been a progressive curtailment in the mileage of multiple tracks built.

These developments include improvements in the design of automatic signals; a wide application of the new method of centralized traffic control; the use of remote-controlled power switches; the installation of spring switches at the ends of passing sidings and at the ends of double-track; a wider application of reverse signaling on multiple-track lines to permit the routing of traffic over any track in either direction; and the development of a system of cab signals to repeat wayside indications, thus freeing enginemen from the limitations imposed by poor visibility.

Through the use of remote-controlled and spring switches, numerous stops are eliminated; centralized traffic control reduces the delays incident to meeting or passing trains, while complete or partial elimination of train orders gains appreciable time for any train; larger and heavier locomotives reduce the number of trains that must be run; and cab signals permit the maintenance of full speed during foggy or stormy weather.

As a net result of these improvements in signaling and the continued increase in motive power there is not now, and is unlikely to be in the near future, the same economic justification for multiple-track construction as formerly. It may be expected, therefore, that this type of construction will remain at a minimum, and that expenditures made to facilitate the movement of trains will be applied largely to provide means for obtaining a more intensive use of existing tracks. In fact, it is not improbable that in certain cases it may be desirable to abandon one or more main tracks and take them up to reduce the burden of maintenance.

After traffic density has outrun track capacity, despite the use of devices for directing and controlling trains, two possibilities of still further increasing the capacity of the line present themselves. The first is additional main tracks and the other is electrification. As between the two, the decision will rest on the relative cost of construction and the relative economies of maintenance and operation. It may be expected, however, that there will be a gradual extension of electrified mileage in the future, particularly in metropolitan areas and in sections of high traffic density.

Grade separations with highways are assuming a larger importance in railway construction, and may be expected to continue to do so in the future. In general,

this type of construction has exerted relatively a minor influence in facilitating the movement of traffic, and from a purely economic standpoint can seldom be justified. The public demand for grade separations is so insistent, however, that this form of construction may be expected to continue indefinitely, particularly in view of the continuing rapid increase in traffic on the highways. In recent years, this type of construction, which ranges from the elimination of an isolated crossing to extensive grade separation projects which embrace a large number of streets, has comprised a large part of the capital expenditures made by the railways.

The most encouraging feature of the grade crossing elimination problem is the changing sentiment of the public and of public officers with respect to the division of the cost of such projects. There is evidence of an increasing appreciation on the part of these officers and of the public whom they represent that they have a growing responsibility for grade separations and as a result, in many places the cost of the work is being divided between the parties at interest—the railways and the local and state governments—on a fairer and more equitable basis, thus reducing the proportionate drain on the railways for the enormous and non-productive financial burden which this construction entails.

A Recently-Constructed Yard Designed to Speed Car Movement

Freight Terminals

In general, passenger and freight terminals require the largest outlay of capital of any form of railway construction, except, perhaps, new lines. No other types of construction are being affected so profoundly by the new conditions of traffic and operation, and the indications are plain that this effect will continue indefinitely. The pressure for accelerated movement of freight traffic and the insistent need for greater economy, together with the changes in methods which they are bringing about, are making many existing yards obsolete.

Under the methods of operation formerly in vogue, every freight train passed through and was broken up at each intermediate terminal. With the development of long engine runs and the "main-tracker" system of handling high grade freight, it was discovered that much of the switching at intermediate terminals could be eliminated.

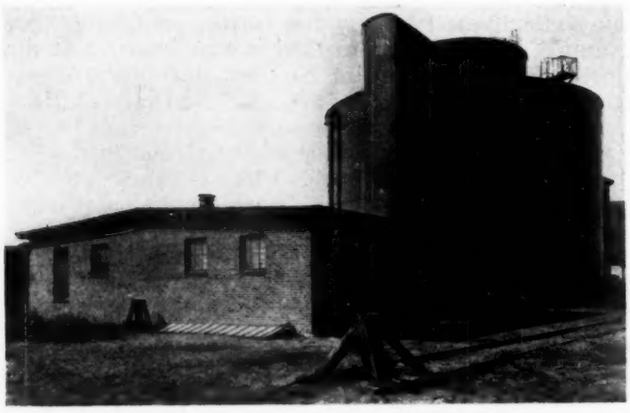
As a further development of this idea, many roads are now preparing their trains at the originating terminal or switching them so thoroughly at some convenient point enroute that they can go through to destination without the necessity for further switching. An example of the former method is that in effect at the Proviso (Chicago) yard of the Chicago & North Western, where outgoing trains are assembled for points as far distant as St. Paul, Omaha, Denver and Pacific Coast points. An illustration of the second method is the system followed on the Chicago, Burlington & Quincy, which sends all freight which originates or is received from connections at Chicago, except that for St. Paul, to Galesburg, Ill., together with such westbound traffic as originates between these points. Here it is assembled into trains for St. Louis, for Kansas City, for points south of the Ohio river, for Denver and even for destinations farther west. While comparable methods are in effect on other roads, it is clear that this development is not yet approaching the utmost limit of its possibilites.

Another trend which is in evidence and which, if continued, will ultimately have far reaching effects on terminal and yard design and construction, is the growing movement to eliminate or reduce, so far as practicable, the amount of switching that is being done in large centers of population.

In evidence of this trend, one road has already eliminated the switching which it formerly did at eight of its freight stations in a large city and is utilizing the valuable ground thus released for the construction of team tracks and other productive facilities. This change in methods, the resulting economies which were realized and the saving in time which was accomplished in the movement of the freight, were made possible by the construction of a new terminal switching yard well removed from the built-up section of the city, which was designed specifically to concentrate all switching at one point. On other roads the classification switching for local delivery and interchange at the terminal is being done in whole or in part at yards as much as 200 to 300 miles distant, thus eliminating the necessity for maintaining extensive switching facilities in the metropolitan area.

Effect on Yard and Terminal Construction

These examples indicate the trend, which is to remove, so far as practicable, all switching from terminals and congested areas, and concentrate it at strategic points well removed from large centers of population. What effect will these changes have on yard and terminal construction? The first and most obvious effect is that intermediate terminals are assuming a posi-



A Modern Water Softener of 150,000-g.p.h. Capacity

tion of less importance than formerly and that smaller and simpler facilities will be required for switching in transit. In some instances, such yards and engine terminals are being abandoned. In others, only such facilities are being retained as are necessary for local and short switching.

Large terminals are also feeling the influence of the changing conditions. In general, it may be expected that individual yards for switching will be discontinued in large part and the ground they occupy will be put to productive uses. Large terminal switching and classification yards will tend to be removed from congested areas and most, if not all, of the classification switching will be done at points distant from the metropolitan area.

For many years a large amount of energy has been devoted to expediting the movement of trains between terminals, and much money has been invested in facilities to accomplish this. Yet it has often happened that all of the time gained on the road, and sometimes more, has been lost in the passage of the cars through intermediate yards and terminals. Yards, particularly those which are provided to concentrate as much of the switching as practicable at a few points, will be built more and more with a view to expediting the movement. As an illustration of this trend, a large gravity yard was completed recently in which the average time required for the passage of cars is only slightly more than two hours.

Through its demonstrated ability to abolish the necessity for car riders and practically to eliminate the damage to lading, the car retarder has made gravity switching an economic success. In fact, this recently-developed device is making it practicable to apply gravity switching to yards of much lighter traffic than formerly, with the added result that the movement through such yards is greatly accelerated.

So rapidly are these changes in yard operating methods taking place that gravity yards of relatively recent construction are being made obsolete by the retarders. This is illustrated by the fact that the Burlington is completely rebuilding its large gravity yard at Galesburg, Ill., to provide for the installation of car retarders on both humps, although the present yard is less than 25 years old. In other cases, flat yards are being converted into hump yards, as was done by the Ohio Central lines at Stanley (Toledo, Ohio), where a flat yard only three years old has been converted into a hump yard with an installation of car retarders.

With the wider application of car retarders and power switches for hump operation, it is being found also that hump switching is now practicable in yards where there is not sufficient traffic to warrant the operation of two humps. In such cases the construction of a single hump for use in switching in both directions provides the advantages of gravity switching with a much smaller investment.

Passenger Terminals

In the past, passenger traffic has been an important element in railway revenues. As a result of keen competition for this business; under the pressure of public opinion and civic pride; and often from a sense of responsibility to the communities which they serve, the railways have made heavy investments in monumental passenger terminals, each more imposing than its predecessor or that of a competitor.

Few large passenger stations of the past have paid an adequate return on the investment, nor were they expected to do so when they were constructed. With the marked decline in passenger traffic of late, and the urgent necessity for construction which will increase the dependability and economy of service, it is certain that passenger stations of the future will involve more moderate expenditures and that they will be subjected to keener scrutiny to insure that the utmost in value

Remote-Controlled Power Switches Eliminate Stops When Taking Sidings

will be obtained for every dollar that is invested in them. To this end, it is to be expected that space will be conserved to a greater extent than heretofore, and that they will receive less elaborate architectural treatment.

Water Service Requirements

Comparable changes are taking place in locomotive water supply. Long engine runs, larger engine tanks, heavier trains and faster freight schedules are making obsolete much of the improvement work done in this field in recent years. Long engine runs and the large engine tanks in use are leading to a greater spacing between water stations, while they are at the same time making heavier demands on those stations at which water is taken.

These changing demands are making added supplies necessary to increase the margin of safety of existing supplies at these points. New pumping and engine equipment, service storage of larger capacity and equipment for faster delivery of the water to locomotives are also becoming more necessary to meet the increasing demands which are being created by those changes in operating methods.

In many instances the complete revision of the water-softening facilities is also becoming necessary to insure that the quality of the water furnished will be more uniform. With the development of larger motive power and the consequent increase in train loadings, there came a realization that the quality of the water that was furnished had a distinct influence on the dependability and economy of train service, as well as on locomotive repairs. As a consequence, the worst waters on a district were treated first, each plant being considered as an individual problem and being designed accordingly. With the growing recognition that locomotives not only require water of a superior quality but uniform in character as well, the next step has been to install softening plants over entire engine districts.

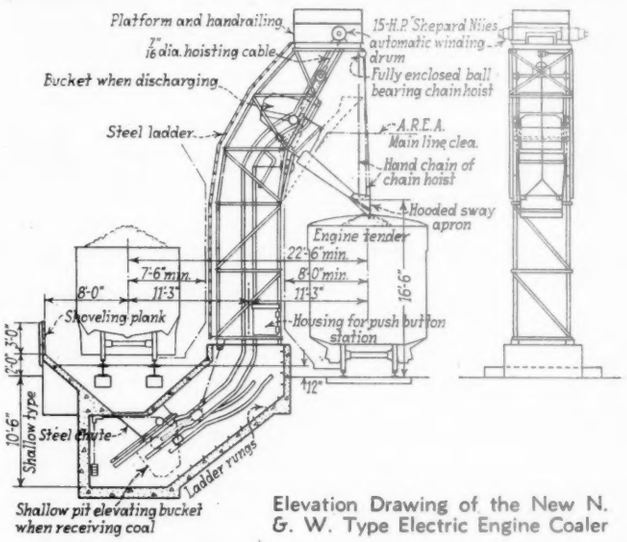
Experience has shown also that, in many cases, waters which are satisfactory for locomotives that are confined to a single district are not so satisfactory when used on locomotives that pass over several districts; and as the locomotive runs are being extended, it is becoming recognized that water softening must, likewise, be done in such a manner as to obtain a practically uniform product at all stations over these extended runs, and that to do this not infrequently requires the complete overhauling or replacement of existing treating plants which have heretofore been satisfactory. In brief, water service engineers and operating officers are now planning water stations more and more on the basis of long engine runs, in which individual stations are considered not as isolated units but as component parts of a general plan.

There is also a changing viewpoint with respect to the quality of the raw water which can be treated with economy in that, instead of considering 10 to 12 grains of hardness as the minimum for economical treatment, it is now appreciated that waters containing as little as 5 or 6 grains can be treated with economy.

The changes which are occurring in industry and the newer competition in transportation are making themselves felt in practically every type of railway construction. Because they are developing so rapidly that many of the problems they are creating must be met and solved currently, alert engineering officers are today devoting more study than ever before to the effects which these changes are producing in operating methods, since it is only by so doing that they can anticipate these improvements which will be of the greatest value to the roads which they represent.

N. & W. Type Electric Coaler of New Design

AN N. & W. type automatic electric engine coaler which embodies a number of features not heretofore incorporated in engine coaling plants has been developed by the Roberts & Schaefer Company, Chicago. The general shape of the steel elevating tower of the new type differs from previous designs in that it is cantilevered to follow the A.R.E.A. clearance line, thereby affording the smallest possible distance between the coal bucket and the engine tender. Another new feature, through the use of which the necessity for a headhouse at the top of the tower has been eliminated, is the provision of a 15-hp. Shepard-Niles, fully-enclosed, automatic electric winding drum. The gears and

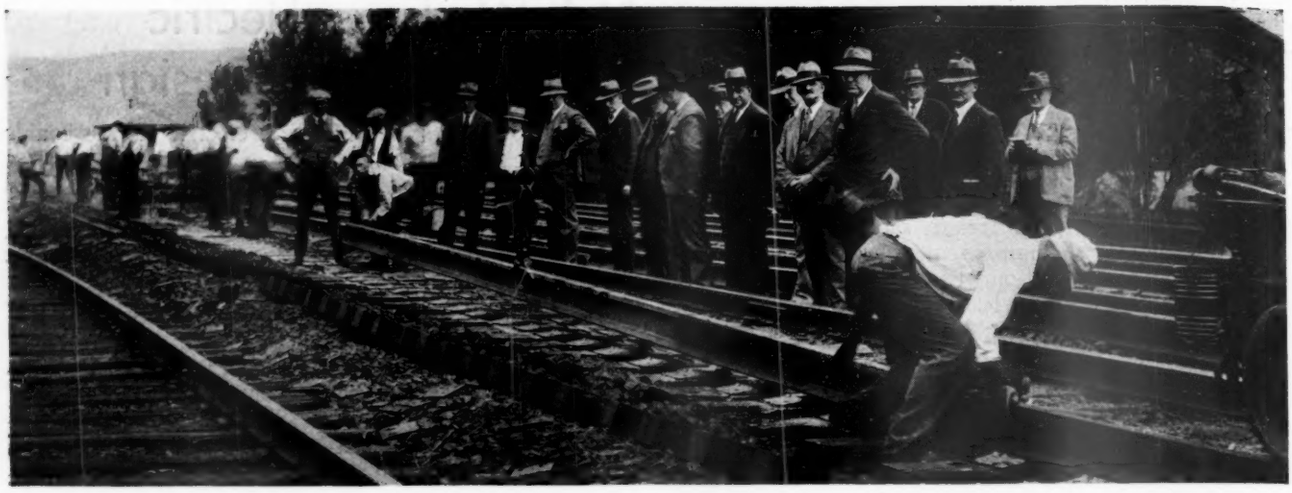


Elevation Drawing of the New N. & W. Type Electric Engine Coaler

mechanism of this equipment are enclosed from the weather in a cast iron and steel housing and operate in a bath of oil, requiring lubrication only once in six months. A third important aspect of the design is the use of a fully-enclosed ball-bearing chain hoist for operating the apron, which obviates the need for counterweights.

The tower consists of four 3½-in. by 3½-in. angles and is tower-braced by angles and gusset plates. The RandS automatic, self-loading, shallow-pit coal bucket, which has been in use since 1920, is employed in this design and travels by means of rollers over 4-in. by 4-in. by ½-in. angle-iron tracks in such a manner that the top of the bucket is always horizontal during the elevating operation. The tower may be located between two tracks with minimum centers of 22 ft. 6 in. and provides a clearance of 8 ft. for the coaling track. The coaler is readily operated with a concrete track hopper 10 ft. long, but the construction of a 40-ft. hopper provides storage for one carload in the hopper in addition to that of a second car spotted over it.

The operation of the bucket hoist, which has a capacity of 65 tons of mine-run coal per hour, is controlled by a Cutler-Hammer automatic controller which is locked in a weatherproof steel cabinet at the ground level. This controller functions by means of a mercury timer which is not affected by temperature, thereby assuring that the interval of operation will always be constant. For convenience, two outside weatherproof push-button stations are provided, one at the ground level and the other on the coaling apron.



Laying One of the First 152-lb. Rails to Be Placed in Track

A New Day in Maintenance of Way

Experience of last 28 months points to marked changes in the conduct of this department's operations in the future

MAINTENANCE of way expenditures have decreased during the last two years at about the same rate that they increased with the skyrocketing costs of labor and material during the war. The reduction in the number of men employed has been so drastic since October, 1929, that maintenance of way operations, measured in terms of the number of men employed, have been virtually on a "winter basis" for 28 months. Yet in the face of this protracted retrenchment, which has no parallel in 50 years of railway experience, the fixed properties of the railways present a surprisingly high standard of physical condition today. In fact, the situation is so remarkable as to exceed the most optimistic expectations of experienced maintenance of way officers, none of whom would have believed that it was possible to maintain the properties in their present condition with such limited expenditures.

Back sight, of course, is always better than fore sight and it is now possible to see that this record is founded on a thoroughly sound basis, for it serves as an emphatic justification of the policies pursued by the railway managements with respect to the tracks and structures during the period that followed the end of federal control.

Improvement of Fixed Properties

The primary phase of this policy was a strengthening of the track structure, which has been responsible for a greater improvement than was made in any other corresponding period in railway history. Much of it had to do with the strengthening of roadbeds, provision for adequate drainage, ballasting, better track anchorage, improved design and construction of switches, frogs and crossings, and other betterments which do not lend themselves to statistical expression. However, in the case of rails and ties it is possible to develop rather tangible indices of the progress that has been made.

As a result of the concerted movement toward the adoption of heavier rail sections, the average weight of rail in all main tracks was increased from 82.3 lb. per yd. in 1921 to 90.0 lb. in 1929. However, since these averages embrace all tracks, including minor branch lines, they do not afford an index of the full effect. This is disclosed more clearly by the fact that the mileage of track laid with rails weighing 90 lb. or more increased from 93,000 in 1921 to 146,000 in 1929, or 57 per cent. Moreover, by considering only the tracks laid with rail weighing 100 lb. or more, the change is found to have been even more pronounced, for in 1921, tracks with rails of these weights totaled 37,500 miles, while in 1929 the mileage was 79,500, an increase of 112 per cent.

That outstanding progress was made in the replacement of untreated ties with treated ties is well known, and specific data have been cited to show what has been accomplished along this line by individual roads, but the change that has been effected in the aggregate has not been so clearly set forth. However, it can be shown from the table of tie renewals prepared by the Committee on Wood Preservation of the American Railway Engineering Association, that of the ties in the tracks of 23 railways with a total track mileage of 179,861 in 1924, 58.2 per cent were treated, while in 1930, the treated ties in the tracks of these same railways represented 80.5 per cent of the total.

The progress made in the replacement of untreated with treated ties during this time is in reality the fulfillment of a program extending over a much longer period, so any measure of the results obtained must also embrace a greater range of years. Thus, in 1915 the number of ties renewed per mile of track (five year average for 27 railways) was 261, while in 1930, the corresponding figure was 174, or an average saving of 87 ties per year for every mile of track. Based on an average of 2910 ties per mile of track, this means an increase in the service life realized from crossties from

an average of 11.2 years in 1915 to an average of 16.7 years in 1930. The effect of this improvement on the outlay for tie renewals, which is influenced in no small degree by adequate tie plating, is too obvious to require elaboration, while the influence of the general strengthening of the track structure, although not so tangible, is a real one nevertheless.

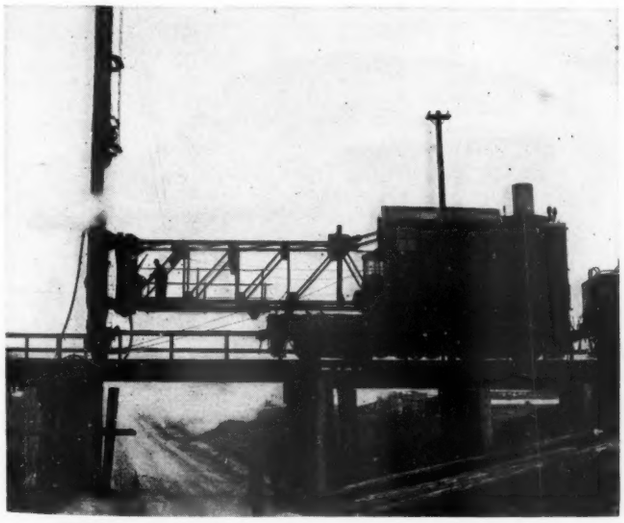
Improved drainage, a more generous section of better ballast, a higher standard of tie condition and heavier rails have produced a stiffer track that has more nearly kept pace with the increasing weight of equipment, with the result that track now stands up better in service and requires less frequent spot surfacing. No better evidence of this is needed than the present condition of the tracks after more than two years of drastically curtailed expenditures.

Much has been accomplished also in the conservation of rail. Important among the influences to this end is the building up of battered rail ends by the oxy-acetylene and electric welding processes. Better designs of rail joints, bolts of high-strength steel, tension-retaining spring washers and joint springs, and rail anchors have also produced measurable results, which, together with the greater stiffness of the entire track structure which has been responsible for the reduction in surfacing and lining operations, have resulted in a pronounced increase in the life of rail in tracks. Added to these agencies that affect the service of all rails, is the installation of rail and flange oilers which is more than doubling the life of rails in curves. Thus, capital expenditures for better and stronger track are resulting in reduced expenditures for maintenance of way.

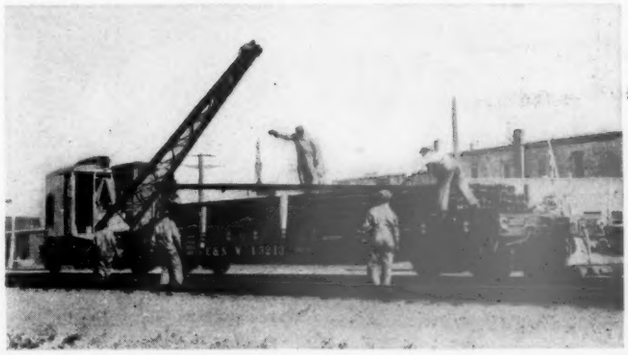
The Elimination of Manual Operations

A much more spectacular development, which has also exerted a pronounced influence on the cost of maintenance of way, is the concurrent mechanization of the work of this department. While all railway officers are conversant in a general way with the progress that has been made in this field, it is doubtful if many of them realize how far it has gone or, more specifically, how much money has been spent for power tools and equipment that are applicable to the divers operations that are carried on by the forces engaged in the upkeep of the fixed property.

To be specific, information gathered from 44 roads with a total line mileage of more than 164,000 indicates that the railways of the United States and Canada spent



Pile Driving Is Now Frequently Programmed On a System Basis



A Machine for Handling Rail Is Now Practically Standard Equipment for Rail Gangs

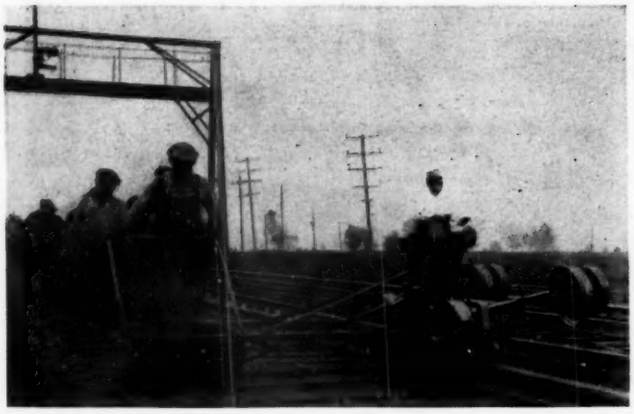
more than $21,000,000 in the last five years for work equipment of various kinds. The appliances bought with this money comprise a list too long to be reproduced here, but an idea of the scope is afforded by a brief list of the operations which these machines are designed to perform with a marked saving in labor. Power appliances are now in use for tamping ties, laying rails, removing and applying bolts, driving and pulling spikes, adzing and scoring ties, jacking and shifting track, mowing weeds, agitating and cleaning ballast, drilling and sawing rails in track, plowing, spreading and shaping ballast, sawing and boring bridge timbers, and trenching and boring of embankments to facilitate drainage.

There has also been a marked development in and an application of equipment for the handling of heavy materials, for excavating and grading, and for the loading, hauling and dumping of earth, rock and ballast. Weed elimination is being expedited by chemical application and burning, and winter problems are being solved by snow melters, switch heaters, snow plows, spreaders, etc. To the specific tools, machines and special service cars that have been bought for doing the various kinds of work represented in this comprehensive list, must be added the prime movers that supply the power for their operation—namely, internal combustion engines which either supply the mechanical power direct, or drive the air compressors and electric motors which furnish power in a form more readily transmitted to hand-held appliances. Nor should one overlook the track motor cars which are used both as a transportation utility and as the motive power for such working units as weed mowers and burners, ballast discers and snow melters.

Machines Demand New Methods

That these various power appliances have had a pronounced effect in reducing the cost of maintenance work is generally admitted but they have had an indirect influence that is not so readily apparent. The introduction of any new appliance to supplant hand methods gives rise to certain modifications in methods or organization, and because some changes are found imperative it is but natural that the more progressive men should inquire whether there are not other changes that would prove beneficial even if not absolutely necessary. Furthermore, in all considerations of the use of machinery, one compelling fact has always come to the front—that the machine must be *used* if it is to earn a return on the capital invested.

Out of the many ideas that have been brought forth from such studies, certain definite principles have been evolved which have come to be recognized as fundamental in the application of machinery in maintenance work;



New Machines Are Constantly Being Introduced

(1) A machine must be kept busy. (2) The best results are obtained if it is placed in the hands of men who have been trained to secure the maximum production with a minimum of mechanical difficulty. (3) Operations, such as ballasting or rail renewals, which involve the use of several types of equipment, call for a synchronizing of operations to insure uniform progress in the entire process. (4) Administrative responsibility must be provided to schedule the use of the machines throughout the working season and check performance. (5) Adequate provision must be made for their maintenance.

Efforts to apply these principles have given rise to measures in the administration of maintenance of way operations involving the use of power appliances which comprise rather drastic departures from policies of long standing. Outstanding among these is the trend toward a subdivision of the work on a functional rather than a territorial basis. Thus, it was formerly deemed necessary to consider the division or even the subdivision as the administrative unit in the conduct of all operations, no matter of what magnitude, with the result that when a division extra gang finished the ballasting program it was assigned to rail renewals on the same division, or vice versa. However, with accumulated experience with work equipment it has come to be realized that the basic principles enunciated above are more readily satisfied by organizing and equipping a gang for a given class of work and scheduling that gang for a full season's work regardless of territorial limitations. This is resulting in the growing application of the idea of district, regional or system gangs for such work as ditching, ballasting, rail renewals, weed burning, pile driving, steel erection, painting, etc.

What of the Section Gang

Concurrent with this development, much thought is being given to the section gang which has long been deemed the very foundation of track maintenance, but even the most intensive study has yet failed to disclose any practical plan of organization that will enable the section gang to meet the conditions essential to the economical application of power appliances on other than multiple-track lines in dense traffic territory, and even there the possibilities are limited. The net result is the transfer of more and more work from the section gangs to some other type of working unit, so that the local gang is becoming a less important factor in all operations except inspection and policing. In view of this, many maintenance officers are raising pertinent questions as to the ultimate fate of the time-honored section foreman and his squad of track hands.

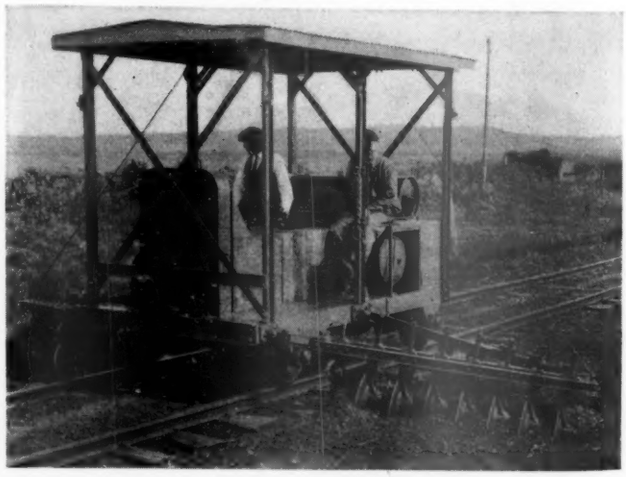
This does not mean that they are about to become extinct. The section gang has many champions, and on many roads the only tangible change to date has been a decrease in the section labor allotment per equated track mile, effected either by a reduction in the number of sections or by a decrease in the number of men per section.

What Is Being Done

In some cases the adjustment has been effected by a corresponding allotment of men to special-service or extra gangs, while on a few roads special maintenance gangs have been created to take over a large part of the work of the section gangs which have suffered rather extensive reductions in size—in two cases to a foreman and one man. Two other roads have applied this plan to branch lines, going so far as to eliminate the section force entirely during the time that the maintenance gang is at work in the vicinity. Still another plan has been applied to a large part of the Burlington system and is now being extended, but this represents an entirely different modification in that the sections are being lengthened to permit of larger forces capable of doing productive work but are being relieved of patrol duty through the creation of the position of an inspector-supervisor, who makes a daily inspection of all track in his territory and also relieves the roadmaster of much of the routine supervision.

While this movement for an overhauling of the maintenance of way organization has been in progress for several years, it is rapidly being brought to a focus by the exigencies of the current retrenchment in expenditures. Maintenance of way officers are being confronted with the fact that tracks can be maintained in condition to handle a considerable volume of traffic with much smaller forces than were hitherto deemed necessary, in so far as current upkeep is concerned. All of this raises an interesting question: Is it not possible to obtain a greater return from any increases in the allotment of track labor over that now employed by grouping such added forces in gangs of sufficient size to permit of productive work with power tools rather than to scatter these men among section gangs in an effort to bring the section force to "normal"? The same question may be raised also with regard to bridge and building forces, although perhaps with less emphasis.

It is not beyond the realms of possibility that the "hard times of 1930 and 1931" will be remembered as the genesis of a marked transition in the conduct of maintenance of way work.



Work of a Machine Such as This Should Not Be Confined to the Limits of One Division

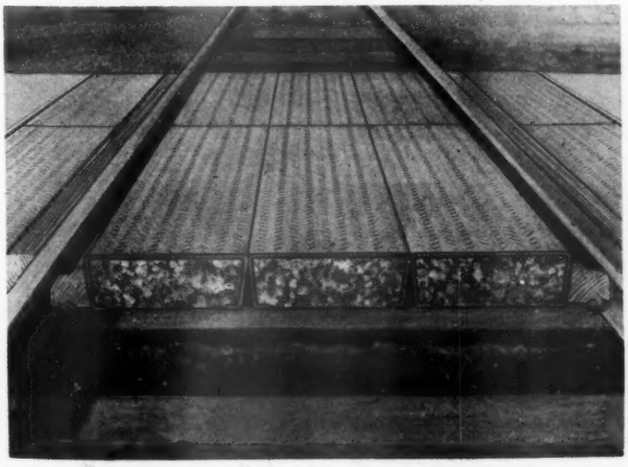
Truscon Steel-Concrete Crossing

THE Truscon Steel Company, Youngstown, Ohio, has developed and put on the market a new type of grade-crossing pavement that combines steel and concrete construction to evolve a product which incorporates simplicity of design, interchangeability of sections, ready installation and removal, and, it is said, low cost and a high degree of permanence. This new pavement, which is known as the Truscon Steel-Concrete crossing, consists of pressed-steel channel sections, or planks, the full height of the rail, which are filled with concrete and laid in position on the ties between and outside the track rails.

The channel sections, which are of standard length and width, are 6 ft. long and 16¾ in. wide, and are pressed from 3/16-in. steel plates with the Truscon safety tread on the top or wearing surface. The end sections differ from the intermediate sections only in that one end terminates in a ramp to prevent its catching dragging equipment on trains. The sides of all sections are tapered inward and in this they not only form a key for the encased concrete, but also afford minimum side surface contact between the units and a suitable space between them for the use of a crowbar during installation or subsequent removal.

The filling of the sections with concrete is left to the purchaser. No forms are necessary in this work as the steel sections when inverted serve this purpose. The filled sections are easily handled by four men without special equipment, and yet are heavy enough so that they stay in place in the crossing under traffic without being spiked or bolted to either ties or rails. They are, however, joined end to end by dowels set in the concrete filler, through which continuity of action is developed.

Flangeways are formed by specially shaped creosoted oak flangeway strips, furnished with the sections, which also provide the insulation for track circuits. Special creosoted filler blocks are also furnished for use immediately along the outside edge of the rail heads, between the rails and the line of paving sections over the tie ends. Where greater insulation insurance is desired than that afforded by the flangeway strips alone, the individual sections between the track rails can be separated longitudinally by either narrow creosoted oak or asphalt strips.



Truscon Channel Planks in a Crossing with the Beveled End Sections Removed

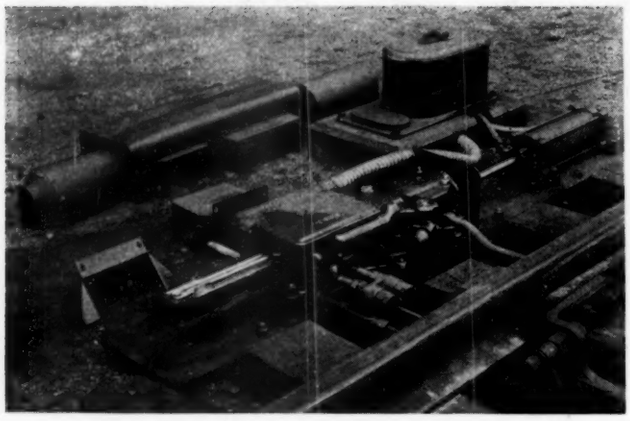
An Example of an Installation of the New Crossing Showing the Beveled End Sections

In addition to the advantages already mentioned, it is claimed that the new crossing is adapted for use on curves up to five degrees; that it is indestructible under even the heaviest highway traffic; that based on a conservative estimate of 20 years life, the cost of the crossing is unusually low; that the crossing is easily and cheaply installed under any weather conditions; and that it involves no maintenance cost.

New Electro-Pneumatic Switch Movement

THE present-day demand for point control as an element of switch operation and the gradual increase in the spacing of head and front rods of switches, as well as the increasing use of heavier rails and more rigid track construction, has led the Union Switch & Signal Company to develop its new Model A-5 electro-pneumatic switch and lock movement. One outstanding feature of this new movement is that the point-control mechanism includes a means whereby the action of the controller de-energizes the KR relay when the points are trailed through. This relay not only remains de-energized until the points are repaired and again properly operated and locked by the movement, but also until the repairman releases by hand a device designed to prevent the possibility of clearing a signal over a switch so damaged until this final act is performed.

Another feature of this new movement is the ability to remove the circuit controller and its housing without disturbing the bearings or the supports of the operating crank or anti-creeping device. Working surfaces have been increased; rollers enlarged, ground and hardened; lubrication improved; and the shear stresses in rivets, pins, etc., relieved. The number of supporting ties has not been altered nor has the relation of the movement to the track been changed. Where possible, dual functions have been given parts formerly having individual duties and the complication of structure is thus simplified. In this connection, the adaptation of the indication contacts to joint operation by both the lock and point-control mechanism of the movement is a conspicuous feature. Thus, the number of contacts employed for the dual duty of switch indication and point control is minimized, which permits uniformity of circuit and contact connections on whichever side of the switch the movement may be located.



The New Switch Movement with Covers Removed

This switch machine is universal in its application to any switch or derailing device. For movable frogs, two movements are arranged in tandem with a single controller operated as formerly by the slide bar, common to both movements, which is jointly acted upon by point-control connections individual to each pair of points. Thus, the same simple electric equipment is retained for the indication of movable-point frogs as for single switches.

New Style Switch Offers Advantages

THE Ramapo Ajax Corporation, New York, has put on the market a type of switch point that is designed to offer a number of advantages in switch-point construction, including greater safety against breakage and derailments, and greatly increased service life, with resultant large savings in switch costs. The new design, which is known as the Racor-Samson switch point, is based on a principle of switch-point construction which has become a universal standard on many roads in continental Europe. The outstanding feature of the Racor-Samson point is that it has a wide tapering head, which makes it sturdier and gives it greater service life than a thinner point made of the same class of metal.

By way of comparison with the knife-blade switch points now in common use in this country, the head of the Samson point at the tip of the point, and immediately adjacent thereto, is in the shape of an inverted "V," several times as thick at the base of the "V," or the base of the head, as in the case of standard points. Furthermore, the increased cross section of the point extends back throughout the weakest section of the point, that is, the tapered portion which comes in contact with the stock rail.

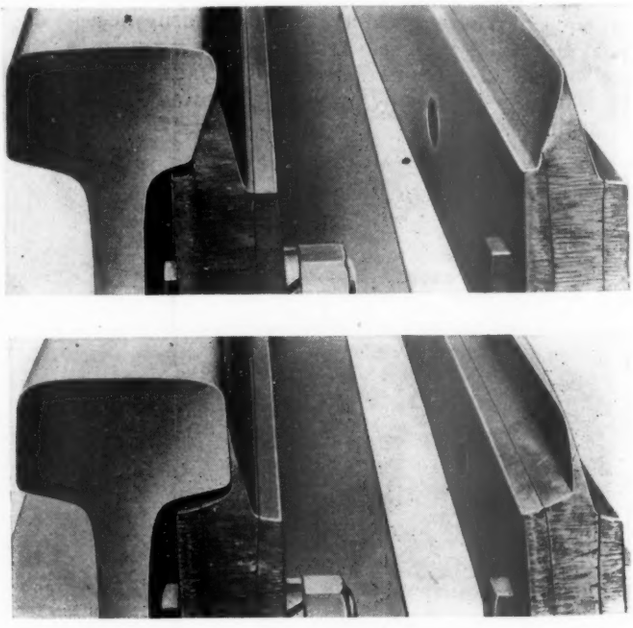
The increased cross section of the Samson point, as compared with a standard point, is made possible by providing a housing on the under side of the gage side of the head of each stock rail, sufficiently large to house the added material in the point. This housing is formed by planing metal from the lower side of the head of each stock rail, which gives the planed side an appearance similar to the head of a "Head-free" rail. As a result of this construction, a heavier section switch point is provided, which does not encroach on the gage lines of the points or stock rails.

Another feature of the Samson point is that, as the end receives lateral wear, the stock-rail housing protects it from full flange contact, and, therefore, from the normal abuse and wear to which a worn standard point is subject. Owing to this feature of construction, it is claimed that the Samson point is safer than a standard point, especially in that it cannot be worn wafer thin and thereby subject to breakage, or caused to present a jagged wearing surface, which condition has been the cause of derailments. It is claimed that the Samson point has a service life up to 10 times that of the common knife-blade type of point, without becoming sufficiently worn to make it hazardous.

It is also claimed that the life of a Samson stock rail is increased in proportion to the increased life of the switch point. This is based on the fact that it is usually desirable and economical to renew stock rails at the same time that points are renewed. If this practice is followed, the expense for stock-rail renewals with the Samson switch is many times less than that of stock rail renewals with the ordinary type of switch. Another economy available through the new type of switch point is that it does not require the use of switch-point protectors.

While the shape of the Samson point appears to differ considerably from the standard design of point, the difference in shape is entirely on the stockrail side, since the planing on the gage side is in accordance with A.R.E.A. standards unless otherwise ordered. Owing to the shape of the point on the stockrail side, the machined head of the stock rail is not exactly similar to the head of a Head-free rail. This makes it necessary that the machined Samson stock rail be used with a Samson point in Head-free rail territory as well as in territory laid with the usual full-head section rail.

While the Samson switch point is covered by United States patents and is manufactured and sold by the Ramapo Ajax Corporation, it can also be furnished under license by most of the other companies specializing in trackwork. The only additional expense involved in installing the Samson switch is that incurred in providing the machined stock rails necessary. This added cost is said to amount to only about five per cent of the cost of the standard knife-blade switch.



A Comparison of the Racor-Samson Switch Point and Stock Rail (Shown Above) and the Common Standard Switch Point and Stock Rail

NEWS

Chicago Traffic Club Discusses Bureaucracy

Has already achieved a strangle hold on the nation, says Merle Thorpe

Bureaucracy and taxation were discussed by Merle Thorpe, editor of Nation's Business, and Fred W. Sargent, president of the Chicago & North Western, at the annual dinner of the Traffic Club of Chicago, held at the Palmer House on March 3 as a tribute to the railroad presidents of the United States, some 40 of whom were present.

Bureaucracy has already achieved such a strangle hold upon the nation, said Mr. Thorpe, that business men fear to condemn it because of its far-reaching influence; but relief from the burden of taxation under which industry and commerce are staggering as a result of bureaucracy will come only when the people learn to think of taxation in terms of the activities to which tax moneys are devoted. "Today," he continued, "one dollar out of each five dollars we earn goes to the 250,000 tax-gathering and tax-spending agencies which have set up in this democracy. From 18,000,000 to 22,000,000 of our citizens are now dependent for their income on tax-supported payrolls, and when one-fifth of a nation's income goes for governmental activities, most of which are non-productive, the breaking point is at hand. The Federal Government is on the road to bankruptcy. Its expenses each day are $7,000,000 more than its income."

He said the $400,000,000 the railroads pay annually in taxes goes to carry on the many activities of the government bureaucrats, which range from writing booklets to point out that "window curtains not only keep out the light but insure privacy" to the preparation of booklets on how to make rompers for children and on the study of lightning bugs. In comparing past expenditures of various departments and bureaus of the federal government, with their expenditures for the fiscal year ending July 1, 1932, Mr. Thorpe said the legislative department of the government, which in 1924 spent $14,000,000, would spend $30,000,000 this year; that the Department of Commerce, which in 1924 spent $21,000,000, would spend $53,000,000 this year; that the Department of Labor, which in 1924 spent $6,000,000, would spend $14,000,000 this year; that the Department of Agriculture which in 1924 spent $141,000,000, would spend $330,000,000 this year; and the Veterans' Bureau, which in 1924 spent $409,000,000, would spend this year under the name of the Veterans' Administration, $784,000,000. The Interstate Commerce Commission which, in 1924 spent $5,000,000, would spend $9,000,000 this year. Mr. Thorpe dwelt at length upon the activities of the Interstate Commerce Commission, pointing out that the commission, which occupies two large buildings in Washington, regulates every phase of railroad operation.

Mr. Sargent said there could be no permanent prosperity until the enormous expenses of bureaucracy had been reduced. In some local communities, where branch lines are being abandoned, the railroads pay 80 per cent of the taxes, he said. The Chicago & North Western, with 8,000 miles of lines, pays more taxes than all of the Canadian railroads with 40,000 miles. He also contended that the federal government's subsidy to the air mail lines, which operate in competition with the railroads carrying the mail into various sections of the country, amounts to $8,000 a ton.

Anti-Injunction Bill Passed in House

The House of Representatives on March 8 passed by a vote of 363 to 13 the La Guardia anti-injunction bill, similar to the Norris bill passed by the Senate the week before, to restrict the issuance of injunctions by federal courts in connection with labor disputes.

Hearing on Moffat Bonds

The Colorado Supreme Court has set March 21 as the day for hearing oral arguments relative to the validity of the bonds issued by the Moffat Tunnel Commission, in excess of the approved $6,720,000. The court will sit en banc and each side will be allotted two hours to present arguments.

Protective Section at New York, May 24

The twelfth annual meeting of the Protective Section, American Railway Association, will be held at Hotel Pennsylvania, New York City, on May 24 and 25, according to a recent announcement of D. L. Webb, chairman. The program will be mailed early in April.

Wabash Authorized to Strengthen Bridges

United States District Judge Charles B. Davis has authorized the Wabash to spend $38,112 for strengthening wooden bridges between Albia, Iowa, and Des Moines, to permit the use of heavier locomotives. The receivers were also authorized to pay $60,000 semi-annual interest due March 1 on Wabash first mortgage 4 per cent gold bonds of the Toledo and Chicago division.

Attacks Fulbright Pro-Truck Assertions

Wyer says claim that highway cost is borne largely by users is misleading—Decries "doles"

Samuel S. Wyer, consulting engineer of Columbus, Ohio, and student of highway taxation problems, in an address before the Dayton, Ohio, Chamber of Commerce on February 23, attacked a recent article by R. C. Fulbright, prominent member of the National Industrial Traffic League and opponent of federal truck regulation. The article in question appeared in "Nation's Business" for February and its theme was that "the burden of supporting state highways has been transferred largely to the motor vehicle users."

This article, said Mr. Wyer, "is a striking illustration of grossly misleading and deceptive information presented to divert the public's attention from our largest dole to selfish business groups. This article rests on tacit assumptions and dogmatic assertions of facts that do not exist. The reader is asked to believe that the motor vehicle industry is paying its own way. The facts of the case are that the dole from the taxpayers to motor vehicles was in excess of 1385 million dollars last year, or an amount larger than the total of all corporation income taxes received by the federal government, and more than 10 per cent of the total cost of all government in the United States this year.

"This highway dole was likewise more than 6 times the total wage cut of railway employees, and 13 times the recent railroad freight increase. This article stresses how roads should be built for long life. It ignores entirely that today's outstanding debt is for roads that have been built and where the relatively short life of these roads is a matter of common observation.

"As a nation we have become a living personification of Ruskin's epigram—'Whatever we have, to get more; wherever we are, to go elsewhere.' Today 37 per cent of the retail dollar goes for automobile costs as against 27 per cent for food.

"The railroad problem has long since ceased to be merely a problem of the railroads. It has become a problem of the nation. For instance, 55 per cent of our people have life insurance policies and every policy in the investment background is affected by the railroad problem. If our political leaders would provide for:

a. Repeal of recapture clause, which is a threat and of no value to the public,

(Continued on page 457)

Civil Servants Told To Ride the Trains

California's finance department sees savings to taxpayers in lower travel costs

As a measure of economy in both time and money, the Department of Finance of the state of California has directed all state officers and employees to travel by train wherever this is practicable. The order points out that many state officers and employees have been using automobiles to make round trips between Sacramento, Cal., and San Francisco, between San Francisco and Los Angeles, between Sacramento and Los Angeles, and between various other points directly served by railroads. Both state-owned automobiles and privately-owned automobiles under mileage allowances have been used for such trips. The order continues:

"The use of automobiles for traveling over long distances paralleling railroads is costing the state many thousands of dollars per year, of which a very considerable portion could be saved if state officers and employees will use the train service. It requires no more time, for instance, to travel between Sacramento and San Francisco by train, but the cost of an automobile trip over such route is very much greater. All department heads should instruct their officers and employees that the use of automobiles to make long trips paralleling railroads must be discontinued."

The order compares the cost of train and automobile travel between Sacramento and San Francisco and between Sacramento and Los Angeles. Between the first two points, the round-trip mileage is 190, and the train fare is $3.60. The cost of the round trip by state-owned automobile at 4.6 cents a mile is $12.44, while the cost of the trip by private automobile under the allowance of 6 cents a mile is $14.20. The excess cost over the train fare, in the case of the state-owned automobile, is $8.84, while the excess cost in the case of the privately owned automobile is $10.60. Similarly, between Sacramento and Los Angeles the round-trip mileage is 812, and the train fare is $30.75, including Pullman charges. For this same trip a journey by state-owned automobile costs $37.35, while a trip in a privately-owned automobile costs $48.72. The train fare is $6.60 less than the cost of the trip by state-owned automobile and $17.97 less than the cost of the trip by privately-owned automobile.

Annual Meeting, Freight Claim Division

The forty-first annual session of the Freight Claim Division of the American Railway Association will be held at the Sherman House, Chicago, on June 7, 8 and 9. At the annual meeting at Seattle, Wash., in 1930, it was voted to hold the 1931 meeting at Louisville, but as a measure of economy, the meeting was postponed. Since the meeting in 1930, many freight claim and claim-prevention problems have arisen that make a session this year imperative.

In planning the order of procedure, the General Committee has restricted the subjects strictly to the business needing attention, eliminating any features not essential to the successful conduct of the meetings each day. The program covers three days, instead of the usual four, and, while it does not seem feasible to dispose of the committees' reports in less than that time, the session will be shortened if it should be found possible to cover all of the matters in two days.

January Net 66 Per Cent Less Than in 1931

The net railway operating income of the Class I railroads in January amounted to $11,713,611, which for that month was at the annual rate of return of eight-tenths of one per cent on their property investment, according to reports compiled by the Bureau of Railway Economics. In January, 1931, their net railway operating income amounted to $34,341,414, or 2.34 per cent.

Operating revenues in January amounted to $275,370,629, compared with $366,040,940 in January, 1931, or a reduction of 24.8 per cent. Operating expenses totaled $229,548,119, compared with $294,152,807, or a reduction of 22 per cent. The reduction in net was 66 per cent.

Taxes paid in January amounted to $24,406,699, a reduction of $2,524,287 or 9.4 per cent below those for the same month last year.

Eighty Class I railroads operated at a deficit in January, of which 28 were in the Eastern district, 17 in the Southern district, and 35 in the Western.

The net railway operating income in the Eastern district in January was $11,831,519, at the rate of 1.71 per cent; in the same month in 1931, it was $19,651,196, or 2.85 per cent; operating revenues were $143,482,420, a decrease of 22.7 per cent under the corresponding period the year before; and operating expenses were $115,202,136, a decrease of 22.3 per cent.

In the Southern district in January the net was $741,428, and the rate 0.29 per cent; while for the same month in 1931, it was $3,375,075, which was at the rate of 1.33 per cent. Operating revenues in the Southern district in January totaled $35,098,600, a decrease of 26.3 per cent; operating expenses $30,500,937, a decrease of 23.1 per cent.

In the Western district in January there was a net operating deficit amounting to $859,336. In January, 1931, the net railway operating income was $11,315,143, which was at the rate of 2.16 per cent. Operating revenues in January were $96,789,609, a decrease of 27.2 per cent under January, 1931; operating expenses, were $83,845,046, a decrease of 21.1 per cent.

CLASS I RAILROADS—UNITED STATES
Month of January

	1932	1931	Per cent decline
Total operating revenues	$275,370,629	$366,040,940	24.8
Total operating expenses	229,548,119	294,152,807	22.0
Taxes	24,406,699	26,930,986	9.4
Net railway operating income	11,713,611	34,341,414	65.9
Operating ratio—per cent	83.36	80.36	...
Rate of return on property investment	0.80%	2.34%	...

Freight Rate Debate in Canadian Commons

Lawmakers question lowness of export rates compared with domestic—Called subsidy

A full-fledged freight rate debate broke out in the House of Commons at Ottawa last week when Ernest Perley, a Saskatchewan Conservative, moved a resolution calling for a substantial reduction in domestic freight rates in the four Western provinces on grain and grain products. A large number of members on both sides of the House took part in this discussion and the resolution was finally withdrawn when Hon. Robert J. Manion, Minister of Railways and Canals, told the House that at an early date the Cabinet would deal with the appeal of the four Western provinces from judgment of the Dominion Railway Board which refused their application along the same lines five years ago. Appeal was taken to the Cabinet from the Board's decision in 1929 but the approach of the general election of 1930 held up this hearing of appeal and it has yet to be heard.

Thomas Reid, a British Columbia Liberal, not only supported the Perley resolution but also demanded that the domestic rate in his province be reduced to the export rate which would involve a reduction of nearly 50 per cent. Another British Columbia Liberal, Hon. Ian Mackenzie, of Vancouver, and a former Cabinet Minister, went so far as to say that if there were a general increase in freight rates in order that the railways might be kept going there probably would be little objection from the Canadian people. The one point on which they would insist, however, he added, was that there be no discrimination in rates.

Mr. Perley, in presenting his case, quoted specimen rates as follows:

Carload rates on grain and grain products in cents per 100 pounds

	Domestic rate	Export rate
From Indian Head, Sask., to Moose Jaw, Sask., distance 90 miles	14 cents	—
From Indian Head, Sask., to Swift Current, Sask., distance 200 miles	20 cents	—
From Indian Head, Sask., to Vancouver, B. C., distance 1,160 miles	52½ cents	27 cents

"Hon. members," said Mr. Perley, "will notice that there is a difference in the domestic and export rates between Indian Head and Vancouver of 25½ cents. From Moose Jaw to Vancouver, a distance of 1,060 miles the domestic rate is 50½ cents and the export rate 25 cents. There is a difference of two cents between domestic and export rates between Indian Head and Vancouver and Moose Jaw and Vancouver. The figures I have given would show clearly that if there were two cars of grain shipped from Indian Head west, one of which had been left at Moose Jaw for domestic consumption the rate would be 14 cents. If the second car were taken on to Vancouver and there used for domestic purposes, on a basis of the export rate per mile haulage they would take it from Indian Head to Moose Jaw for two cents.

"From Indian Head to Moosomin, a distance of 100 miles, the rate is 14½ cents. If the car were taken on to Fort William, 620 miles farther, it would be taken that extra distance for 4½ cents. From any point in Saskatchewan to Montreal there is only a three-cent differential as between the domestic and the export rates. The differential from any point in the province to Vancouver is twenty-five cents. Why there is this discrimination as between the east and west bound rates I cannot understand."

Dr. Manion explained that export rates not only on grain but on all commodities are usually lower in all countries than domestic rates; they are lower because of the advantage which they give to producers and traders in a country to compete with traders in other countries on what somebody has expressed as a free trade basis; they give them an opportunity to compete in outside markets.

He explained further that the railways contended that the export rates were unremunerative and that they had not wished to apply them but had been forced to do so by the Railway Commission. The railways claim that on the 20-cent export rate from Edmonton or Calgary, for instance, "they are actually subsidizing export trade. They pointed out to me that the Seattle export rate is from 31½ cents to 37½ cents as compared with the Canadian rate of 20 cents, the compared rates covering equal distances. They took the further stand that the Canadian rates on grain are the lowest in the world."

Shippers' Board Meetings

The Ohio Valley Shippers' Advisory Board will hold its next meeting at Columbus, Ohio, on March 15. On the same day, at a luncheon given by the Columbus Transportation Club, J. F. Deasy, vice-president of the Pennsylvania, will speak on "Railroad Problems and Possibilities."

The Atlantic States Shippers' Advisory Board will hold its next meeting at the Robert Treat Hotel, Newark, N. J., on Thursday, March 24.

Further Hearing To Be Held in Western Grain Case

The Interstate Commerce Commission has assigned its general investigation of rates on grain and grain products in the western district, in which its order was enjoined by order of the Supreme Court of the United States, for further hearing at Chicago on April 5, before Examiners Mackley and Hall. The hearing will be solely on general evidence of changed conditions affecting grain and grain products and their transportation since the termination of hearings in September, 1928.

Club Meetings

The Pacific Railway Club at its annual meeting in San Francisco on March 10 elected officers for the ensuing year as follows: President, Lacy L. Galbraith, conductor, Atchison, Topeka & Santa Fe; first vice-president, D. C. Wilkins, commercial agent, Western Pacific; second vice-president, W. R. Parker, road foreman of engines, Southern Pacific; treasurer, A. J. Lundberg, president, Key Terminal; secretary, William S. Wollner.

The Cleveland (Ohio) Railway Club will hold its next meeting on Monday evening, March 14, at the B. R. T. Building, Cleveland. Thomas H. Carrow, (Pennsylvania) will speak on discipline and its relation to safety.

$47,000,000 Loaned To Railroads

The Reconstruction Finance Corporation had made loans to railroads amounting to $47,000,000, it was announced on March 8. Although the corporation has specifically announced loans to railroads in only five cases, this total covers most of the loans which have been approved so far by the Interstate Commerce Commission, in 14 cases amounting to about $53,000,000. Thirty-three applications for loans amounting to $239,000,000 have been announced by the commission.

Some of the loans are to be repaid as soon as funds are available from the Railroad Credit Corporation, but reports to the Interstate Commerce Commission indicate that the increased revenue collected by the roads in January from the temporary emergency increase in freight rates, which is to be pooled and loaned, amounted to only a little over $4,000,000.

Senate Committee Accepts House Six-Hour Day Resolution

The Senate committee on interstate commerce on March 5 decided to accept the joint resolution passed by the House on January 27, providing for an investigation of the six-hour day question, in place of the concurrent resolution introduced by Senator Couzens and passed by the Senate on January 22. A favorable report on the House resolution introduced by Representative Crosser, was ordered on March 7. The Crosser resolution directs the commission to report to Congress by December 15 "what would be the effect upon operation, service and expenses of applying the principle of the six-hour day in the employment of all classes and each particular class of railway employees because of such application." The Senate resolution, which would not require the signature of the President, did not mention the factor of expense and it also provided for an advisory council, representing both management and labor, to aid the commission in its investigation.

Attacks Fulbright Pro-Truck Assertions

(Continued from page 455)

b. Interstate Commerce Commission regulation of all interstate transportation facilities, including the Panama canal,

c. Removal of all doles from transportation agencies so as to make each stand on its own feet without a contribution from the taxpayers,

—this would solve the railroad problem without a wage cut from the employees or freight rate increase from the shippers.

"The most dangerous individuals in the United States are not the socialists or the radicals, but selfish business men who, while objecting seriously to doles for labor, have been keeping their hands in the public treasury and taking out doles for their own selfish interests—not to lower costs to the public, but to increase profits for themselves. Every governmental business activity has been initiated by selfish business groups who wanted to get a dole for themselves.

"Panama Canal service has always been below cost. The dole from the taxpayers to date amounts to 226 million dollars. Since foreign ships make up 51 per cent of the traffic, this is likewise a dole to foreign shipping. The Monongahela river waterway program rests on a dole of 31 million dollars. The New York State Barge Canal rests on a dole of $5 per ton for every ton of freight that is moved through the canal. The Inland Waterways Corporation, owned by the United States government, has a dole of 60 per cent of its service on the Mississippi river direct from taxpayers. Since 1920 the dole from the taxpayers to the post office has been 730 million dollars."

Attorney General Asked to Report on Railroad Acquisitions

The Senate, on March 8, adopted the resolution introduced by Senator King, of Utah, calling on the Attorney General to inform the Senate as to whether "such transactions" as the acquisitions of control or partial control of railroads through holding companies or otherwise described by Commissioner Eastman of the Interstate Commerce Commission in testimony before the House committee on interstate and foreign commerce, constitute violations of the anti-trust laws. Commissioner Eastman, testifying on the bill to increase the jurisdiction of the commission over such acquisitions, particularly described the activities of the VanSweringen and Pennsylvania interest in connection with the proposed four-system plan of consolidation. The resolution referred to the four-system application now pending before the commission by saying that, if approved, it would "explicitly condone these violations of law," as to which the Attorney General is asked to inform the Senate whether they are violations, "and render the commission powerless to exercise its independent judgment as to the public interest in the consolidation of railroads in such territory."

U. S. Chamber Committee Considers Co-ordination Study

Plans for a study of pending problems of co-ordination and regulation of transportation were considered at a meeting of the Transportation and Communication Department Committee of the U. S. Chamber of Commerce in New York, on March 10. The board of directors, which has had under advisement the desirability of holding a general transportation conference, at its last meeting requested this committee to canvass the situation in the light of recent developments and submit its recommendations.

In this connection the committee had before it a report on the proposed International Chamber of Commerce conference on co-ordination of road and rail transportation. The International Chamber is requesting each country to organize a national study by a mixed com-

mittee or conference including representatives of shippers and transportation agencies.

Other matters considered included pending reports on local transportation, inland water transportation, merchant marine, street and highway traffic, commercial aeronautics and postal service.

Fred W. Sargent, President, Chicago & North Western, is chairman of the committee.

N. Y. Chamber Opposes Further Waterway Expenditures

While favoring the incorporation of the New York barge canal into the federal government's waterway system, because of its national character, the Chamber of Commerce of the State of New York opposes at this time new expenditures for the improvement or further extension of this or any other of the inland waterways. A report with resolutions embodying these recommendations, was adopted at a meeting on March 3. The report, prepared jointly by the Committee on the Harbor and Shipping and the Committee on Internal Trade and Improvements points out that a previous recommendation had advocated federal appropriation for the improvement of the New York barge canal. Since the adoption of this original report, however, the financial situation of the federal and other governmental budgets has become such that it was modified to eliminate the appropriation recommendation.

The committees believe, however, the report continues, that the New York barge canal is an important part of the national waterways system and the State of New York, contributing as it does approximately 25 per cent of all federal taxes, is paying substantial sums toward the maintenance of other inland waterways which are competing with the barge canal.

Railroad Y.M.C.A.'s Celebrate Fiftieth Anniversary

In 1881 the Railroad Y.M.C.A. established a reading room in the Boston & Albany office building at West Springfield, Mass. In the following year quarters were also established in the enginehouse at Springfield, the two projects being operated jointly. In 1900 the two branches became independent of each other, both steadily extending their activities and improving and enlarging their buildings. A three-day celebration of the Fiftieth Building Anniversary of the West Springfield association, the Springfield association co-operating, was held March 5, 6 and 7. An open house program was the feature on Saturday afternoon and evening, the 5th. On Sunday afternoon there was a men's mass meeting and in the evening a union church service was held in commemoration of the anniversary. The program culminated with a banquet on Monday evening, March 7, at the Hotel Charles, George K. Roper, senior secretary of the Transportation Department of the National Council of the Y.M.C.A., acting as toastmaster. Addresses were made by Col. B. A. Franklin, vice-president of the Strathmore Paper Company, and Roy V. Wright, managing editor of the *Railway Age*. E. B. Rockwood, general storekeeper of the Boston & Albany, was chairman of the general committee in charge of the anniversary exercises.

Operations of Inland Waterways Corporation

The War Department has made public some brief extracts from the forthcoming annual report of Major General T. Q. Ashburn, chairman and executive of the Inland Waterways Corporation, for the calendar year 1931, showing a net operating income for the year of $298,756. It was also state that "there was charged for depreciation a total of $563,287.85 which actually was collected from operating revenues and deposited in our general fund." The corporation paid in actual taxes to the State of Alabama the sum of $8,490.01, and it paid a total of $210,802.25 for use of municipally owned terminals; which sum was available for such municipalities to pay taxes, etc.

"The corporation has approximately $2,000,000 on deposit in various banks throughout the country. On these deposits interests accrued to the amount of $71,339.56 (exclusive of operating income) which, including interest earned on loans, not only paid the expenses of the Washington office (including the salary of the Chairman), but was in excess of such expenses by the sum of $15,889.73.

"Authorized projects as of the date of this report amount to $1,354,065.56, with approximately $2,000,000.00 available without further withdrawal from the United States Treasury. The corporation has no outstanding bonds, consequently pays no interest thereon; nor does it have any borrowed money on which to pay interest."

G. M. & N. Employees' Wage Cut

The employees and the management of the Gulf Mobile & Northern and the New Orleans Great Northern agreed on February 16 that the mediation proceedings pertaining to wage reductions proposed by the railroads be suspended until May 1, 1932, and that the employees involved shall accept a deduction of 10 per cent from their wages earned each month from January 1, 1932, to May 1, 1932, and thereafter until mediation is resumed.

In the latter part of the spring of 1931, it was apparent that these roads would end the first six months with a deficit of approximately $235,000, and the managements informally called upon the employees to contribute voluntarily to the companies 10 per cent of their wages, the only exception being that this request did not apply to men earning $50 a month or less. Of those called upon, 85 per cent responded; and through the money thus saved, together with economies in other directions, the two roads were enabled to end the year with a net loss of only approximately $250,000.

At the close of 1931, it became apparent that the 10 per cent contribution could not be discontinued without disaster to the companies and was not, in fact, sufficient to overcome the excessive losses which were endangering the companies' existence. It was, therefore, decided that the companies would suggest to their employees what they considered the minimum reduction necessary to maintain the most economic operation compatible with good service until conditions should improve. In justice to those who had contributed voluntarily, it was suggested that those who had not so contributed should undergo relatively greater reductions in wages until contributions should have been equalized. These proposals having failed of acceptance by the representatives of certain employee organizations, the matter was brought to mediation.

Oklahoma Motor Truck War

"The State of Oklahoma," says a bulletin of John E. Benton, general solicitor of the National Association of Railroad and Utilities Commissioners to the membership of that association, "is supplying rather striking evidence of the need for regulation of interstate motor vehicles and for the inclusion in such regulation of contract carriers as well as common carriers. Oklahoma undertakes to collect fees for use of its highways by those who transport for hire. Interstate carriers are required to procure permits from the Corporation Commission, and to pay fees. Roadway Express, Inc., lately applied to the Oklahoma Commission for a permit. Its manager testified that the applicant would haul no intrastate business, and rested. It was developed by questions from Chairman Walker that the applicant owns no equipment, but that its manner of doing business is to make a contract to move a given shipment of goods and then to hire somebody to haul the shipment, leasing the truck for the trip. It proposed to obtain one permit, and pay one fee, to cover all the business it might do in Oklahoma.

"Questions about investment and profits developed the interesting information that Roadway Express, Inc., is incorporated for $1,500, but does approximately $1,200,000 of business per annum on a brokerage basis of 20 per cent. The way the company gets its business is indicated by the following testimony from the manager: 'A man gets a load at one rate and another load at another rate.* * * If another man hauls for a nickel I haul them for nothing.' He said he made a net profit last year of approximately $150,000,—10,000 per cent on his stock. Chairman Walker remarked, 'That is a good business.' The manager replied, 'The best racket I was ever in.'

"When the hearing ended the Commission ordered briefs in 30 days. Roadway Express, Inc., however, did not choose to file briefs. Instead it went into the federal court and asked an injunction running against the Governor, the Corporation Commission, and the Highway Commission. The court granted a restraining order, and set the case down to be heard sometime between the first and fifth of March, 1932. When this restraining order was served on Governor Murray, he let himself be heard from. In a letter to the judge who granted the order he said that, 'No court less than the Supreme Court of the United States shall ever try a case in which the state shall be a party,' and that neither he nor the boards subject to his control would file

answer. He reminded the judge that under the Oklahoma constitution the Governor is commander-in-chief of its military forces, and that his rule 'can not be interfered with except by the supreme power of the national government, to-wit: the Supreme Court or the President of the United States.'

"It will now be interesting to see whether Roadway Express, Inc., does a flourishing business through Oklahoma."

C. N. R. Finances

While the annual report of the Canadian National Railways will not be submitted to Parliament at Ottawa before March 15 some indication of the state of that system is furnished in figures produced during discussion last week by the House of Commons Committee on National Railways and Shipping, of which Richard B. Hanson (Conservative, New Brunswick) is chairman, when that committee had before it a supplementary estimate of the Minister of Railways, Hon. Robert J. Manion, for the sum of $11,372,000 to help the road meet its deficits. Dr. Manion told the committee that this year, as compared with last year, the gross returns of the road are down about $600,000 a week.

"They had put in an estimate last year of an estimated deficit so far as paying interest to the investing public was concerned of $31,000,000," said Dr. Manion. Hansard (the record of Parliament's proceedings) contained a typographical error and made it $51,000,000 instead of $31,000,000. This statement shows that the real estimate in round figures is $52,000,000. Thus they need $21,000,000 more to meet this interest to the public. Second, equipment, principal payment, sinking funds, etc., $492,000, which is also in addition to what they estimated for last year. Their estimate is three million, and it is $492,000 more than that. Finally, there was an $11,000,000 item which as I explained to the house the other day was for the purpose of paying for equipment which ordinarily would have been financed by equipment trusts.

They put in an item last year for additions and betterments to cover their needs of $20,687,000, or nearly $21,000,000 for additions and betterments. Out of that they spent $6,900,000 which leaves out of that item $13,700,000 which, according to the Act of last year, they are permitted, if the deficit went to a greater extent than they had intended or expected, to apply to the deficit. Now, that is a credit of $13,700,000. The second item is $7,331,000 which is explained in this way. They put out a $70,000,000 bond issue in 1931. The government had handed over the proceeds to them, and they had remaining, which they might have spent according to the statutes of last year, $7,331,000.

"I will give you the figures. Montreal Terminal $4,293,000, which was not spent; Toronto Terminal $1,356,000, which was unspent; Branch Line $1,635,000 which was unspent; Northern Alberta Railway $45,800, which was unspent. In this Bill you will notice in clause 2 there is permission to use this $7,000,000 cash which they got for other purposes. Taking those two items together $13,700,000 and $7,000,000 odd that makes a credit of $21,000,000 and leaves the balance which is provided for in the Bill of $11,372,498.86.

"Work on the Montreal Terminal is practically stopped. They spent $6,000,000 out of $8,000,000. Up to the present time the total expenditure is $15,000,000, more than one-half of which is on land purchase.

"You read that the railways cost the country $112,000,000. That is quite correct, but the difference is this: that $56,000,000 deficit is merely the deficit so far as paying interest to the investing public is concerned. The investing public is owed interest to the extent of $57,000,000 this year including Eastern lines, but if we take the one million surplus off that amount, it leaves a deficit in interest to the public of $56,000,000. Then there are additions and betterments, hotels, and some other items in the estimate of last year which totalled $87,000,000. There are the maritime freight rates, about $10,000,000."

A. R. A. Joins National Safety Council

The Safety Section of the American Railway Association, following action taken by the Committee of Direction last October, and approval by President R. H. Aishton on February 26, is to become the Steam Railroad Section of the National Safety Council; and it will hold its annual meeting as a part of the annual congress of the Council. The Safety Section retains its name, rights, privileges, obligations and organization as a section of the American Railway Association.

This action has been taken for the purpose of eliminating duplication of effort and decreasing expenses. C. T. Bailey (Oregon Short Line, Salt Lake, Utah) chairman of the Safety Section, in a circular announcing this action, explains briefly the purposes in view and the benefits expected. The financial support of the N. S. C. from railroads is to be derived, as at present, from individual railroad members. The Safety Section will be represented on the executive committee of the Council. Railroad employees may attend sessions of the annual meeting of the Section without payment of the annual congress registration fee; but will not be entitled to participate in other features of the congress without payment of the regular fees. The Safety Section, A. R. A., pledges its continued loyal support of the purposes and policies of the N. S. C.

The present action is described as an emergency arrangement to be effective for two years from March 1, 1932; and to be subject to review at that time.

The annual meeting of the Safety Section, heretofore held in the spring, will be held this year on October 4, 5 and 6 at Washington, D. C., in connection with the annual meeting of the N. S. C. The regular notice will be issued in the near future.

Railroad men are reminded that the financial policy of the National Safety Council is to return in service all moneys received, thus operating without profit; and to undertake only such activities as promise reasonable permanence.

Equipment and Supplies

FREIGHT CARS

THE FRUIT GROWERS' EXPRESS has ordered 25 steel underframes for refrigerator cars from the Pressed Steel Car Company.

THE UNITED STATES NAVY DEPARTMENT has ordered five flat cars of 50 tons' capacity from the Koppel Industrial Car & Equipment Company. Inquiry for this equipment was reported in the *Railway Age* of January 16.

THE PACIFIC FRUIT EXPRESS COMPANY, reported in the *Railway Age* of February 27 as contemplating purchasing or building 100 new freight refrigerator cars, will build these cars in the Pacific Fruit Express Company's shops at a cost of about $500,000. The cars will be larger than those now in service; they will have an inside length between bulkheads of 42 ft. 6 in. The larger size cars are being provided for the handling of such commodities as frozen food products and frozen fruit juices.

IRON & STEEL

THE CINCINNATI UNION TERMINAL COMPANY has ordered 178 tons of structural steel for two turntables from the McClintic-Marshall Corporation.

MISCELLANEOUS

THE BALTIMORE & OHIO has contracted for 79 air conditioning equipments for passenger cars. These are to be installed in 62 Pullman cars and 17 Baltimore & Ohio cars. The work will be carried out in the shops of the Baltimore & Ohio and is expected to be completed and the cars ready for service about June 1.

JUDGE GEORGE C. O'BRIEN of the district court at Beaumont, Tex., has made permanent the injunction issued last year against the proposed issuance of bonds, the proceeds of which were to be used to bear the city's share of the cost of constructing a viaduct by the Southern Pacific. Under the agreement entered into between the city and the railroad, the total cost of the project will be approximately $4,000,000, of which the city was to pay $900,000. W. P. H. McFaddin, W. A. Priddie and others sought to restrain the city from issuing the $900,000 of bonds which had been voted for the project, contending that the city could have compelled the railroad to stand the entire expense of elevating its tracks and installing underpasses for street crossings; and about $200,000 of the sum the city had obligated itself to pay was termed a "donation" to the Southern Pacific.

Supply Trade

The Vapor Car Heating Company, Inc., Chicago, has removed its New York City office from 9 Park Place to 75 West street.

William A. Irvin, a vice-president of the **United States Steel Corporation,** will succeed to the presidency upon the retirement of **James A. Farrell** on April 19.

The B-B Nut Company, Eighth street and Columbia avenue, Philadelphia, Pa., has acquired the sole licenses for the United States, Canada and Mexico of all patents of the Safety Nut Corporation, Philadelphia.

Sheldon, Morse, Hutchins & Easton, which was recently formed to handle industrial marketing and the economic problems connected with scientific industrial research, has moved its office from 191 West Fourth street to the Graybar building, 420 Lexington avenue, New York City.

The Unlimited Lines, Inc., successors to the Mo-Mo Company, 518 Seneca street, Seattle, Wash., has opened a sales office and factory at the above address. The company manufactures cleaning products for washing railway coaches. **W. A. Court,** who resigned from the Chicago, Milwaukee, St. Paul & Pacific in January of this year, is head of the department of sales for the corporation's railway supply business. **Morris Levey** is president and general manager, **J. Farr** is in charge of production and **George Koch** is secretary.

Archibald H. Ehle, former vice-president in charge of sales of the Baldwin Locomotive Works, has been appointed director of sales of the rail car division of the **Edward G. Budd Manufacturing Company,** Philadelphia, Pa., under the direction of F. H. Russell. The Budd Company, in addition to its own development of stainless steel car construction, has acquired the American rights to the Michelin pneumatic tired rail car. Mr. Ehle was born in Fairbault, Minn., and received his education at the Massachusetts Institute of Technology. In 1902 he entered the service of the Baldwin Locomotive Works as an apprentice, serving in various capacities until he was appointed general sales manager in 1919. In 1926 he was elected vice-president in charge of domestic sales, and later was placed in charge of general sales, which position he occupied until his resignation in the fall of 1931.

Correction

The following statement is published to clarify any misunderstanding that may arise as a result of the item published in the *Railway Age* of February 27, page 383, relative to the receivership sale of the **Railroad Supply Company** to the **General Railway Signal Company.** Because of certain patents the tie plate business of the Railroad Supply Company was not included in the sale of the other activities of the company and on the day of the sale the court directed the trustee to release the trustee's claims and rights to the tie plate patents to the respective owners, **E. H. Bell** and **William S. Boyce.** Following the return of the patents the owners will continue in the tie plate business. Mr. Bell has organized the Track Supply Company, Buckingham building, Chicago, and Mr. Boyce is doing business under his own name with offices in the Straus building, 310 South Michigan boulevard, Chicago.

Poor & Company

The annual report of Poor & Company for 1931 shows a net profit of $147,920. Net sales in 1931 totaled $6,318,106, as compared with $9,621,334 in 1930, while the cost of sales was reduced to $4,959,406, as compared with $7,398,400. The consolidated income account as of December 31, 1931, as compared with 1930, follows:

	1931	1930
Net sales	$6,318,106	$9,621,334
Cost of sales	4,959,406	7,398,400
Gross profit	1,358,700	2,222,934
Selling and administration expenses	981,378	1,236,795
Royalties paid	53,618	66,931
Operating income	323,704	919,208
Royalty income	105,727	167,940
Total income	429,431	1,087,148
Patent and depreciation expenses	193,508	210,290
Interest received	55,897	83,472
Bond interest and expenses	138,015	147,217
Loss on sale of securities, etc.	3,236	82
Income taxes	2,650	84,027
Net income	147,920	729,003

Canadian Locomotive Company

The report of the Canadian Locomotive Company, Ltd., for the year ended December 31, 1931, shows a loss from operations in the year, but in a number of respects the balance sheet position of the company has been improved. Inventories are lower, a somewhat larger amount was appropriated for depreciation, and bank loans and accounts payable are reduced by material amounts.

The net operating loss before depreciation was $148,083, but interest on investments and income from sinking fund investments reduced the net loss to $72,913. Bond interest was $90,000, as for previous years. The depreciation appropriation was increased to $159,258, compared with $150,000 for the previous year. A new item in the profit and loss account is $3,134 for the Ontario corporation tax, bringing the net deficit for the year to $325,305. For the previous year, the surplus was $184,568 after sinking fund provision.

Comparative profit and loss account figures follow:

	1931	1930
Earnings	*$148,083	$374,310
Interest on investments, etc.	50,912	52,353
Profit on investments	.....	13,005
Profit	*$97,171	$439,568
Income from sinking fund investments	24,258	.....
	* 72,913	439,568
Bond interest	90,000	90,000
Depreciation	159,258	150,000
Ontario corp. tax	3,134	.....
Net profit	*$325,305	$199,568

* Loss.

OBITUARY

John E. Anderson, manager of the service department of the Simmons-Boardman Publishing Company, New York, from 1918 until his retirement about a year ago, died in the Hackensack (N. J.) hospital on March 7. Mr. Anderson was born at St. Albans, Vt., on July 16, 1873. He entered railroad service on the Central Vermont, on which he served as a fireman and in various capacities in the mechanical department and was promoted to enginehouse foreman. At various times in his career he was employed as enginehouse foreman or general foreman by eight other railways, mostly in the eastern part of the United States, but also including the Grand Trunk in Canada and the Atchison, Topeka & Santa Fe, being at one time general foreman on the latter road at Raton, N. M. For some years Mr. Anderson was located at Susquehanna, Pa., on the Erie, where he served as general enginehouse foreman. Prior to joining the Simmons-Boardman organization he was general foreman at the enginehouse and shops of the Delaware & Hudson at Oneonta, N. Y.

Construction

GULF DEVELOPMENT COMPANY.—This company has been reported as planning to undertake, in the near future, the construction of a new 75-mile railroad line to connect Andalusia, Ala., with Port Dixie, Fla. The proposed railroad is part of a larger project sponsored by the same company, which includes also the construction of a new seaport (Port Dixie) at a point 25 miles south of Crestview, Fla., and 40 miles east of Pensacola, on the shores of Choctawhatchee bay, a natural land-locked harbor opening into the Gulf of Mexico. Plans for the construction of the port are understood to be nearing completion, while it has also been reported that a locating party will be started over the general route of the railway at once, to determine the right-of-way in preparation for the letting of a grading contract about May 1. That section of the new line from Port Dixie to a connection with the Louisville & Nashville west of Crestview will be surveyed and built first, to provide transportation for materials required in the port construction, while the 50-mile extension north to a junction with the L. & N. and the Central of Georgia at Andalusia will be undertaken later. General Albert C. Dalton, U. S. A., retired, is president of the Gulf Development Company, which is incorporated in Delaware for $2,500,000, and Captain Mallie Martin, of Crestview, is in charge of the railway surveys and construction.

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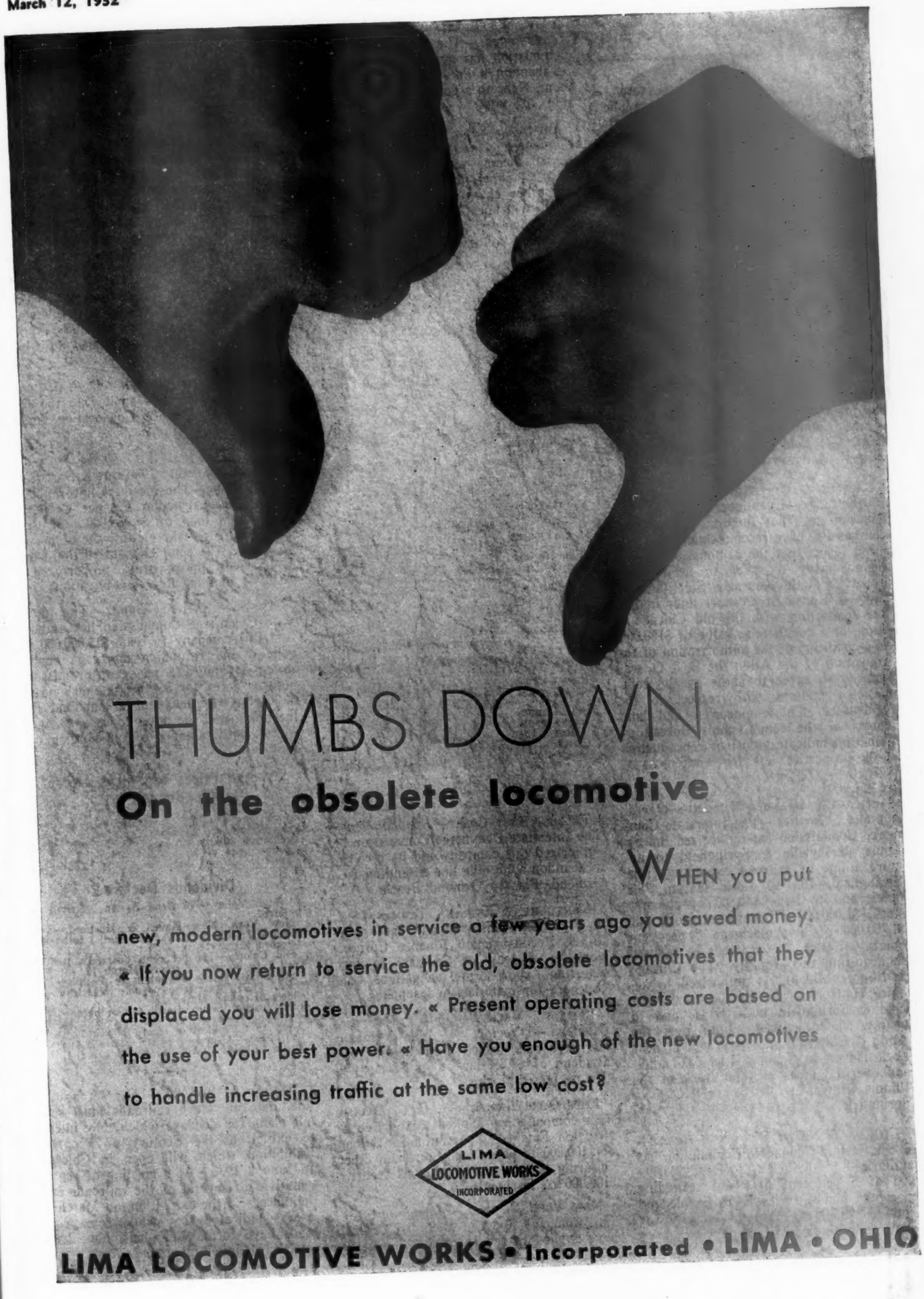
THUMBS DOWN
On the obsolete locomotive
WHEN you put new, modern locomotives in service a few years ago you saved money. « If you now return to service the old, obsolete locomotives that they displaced you will lose money. « Present operating costs are based on the use of your best power. « Have you enough of the new locomotives to handle increasing traffic at the same low cost?
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Financial

AKRON, CANTON & YOUNGSTOWN.—*R. F. C. Loan.*—This company has applied to the Reconstruction Finance Corporation for a loan of $600,000 to enable it to meet interest requirements, maturing obligations and unpaid vouchers for materials and supplies.

AKRON, CANTON & YOUNGSTOWN.—*Bonds.*—The Interstate Commerce Commission has authorized the Northern Ohio, to issue $800,000 of general mortgage 6 per cent, series A, bonds to be delivered to the Akron, Canton & Youngstown in satisfaction of capital indebtedness and the latter company has been authorized to assume obligation as guarantor for the bonds, and to pledge and repledge them as collateral security for notes.

ATCHISON, TOPEKA & SANTA FE.—*Control of Cane Belt.*—The Interstate Commerce Commission has authorized the Gulf, Colorado & Santa Fe to acquire control by lease of the Cane Belt.

BALTIMORE & OHIO.—*Acquisition of Short Lines.*—Examiners Sullivan and Jameson of the Interstate Commerce Commission have recommended in a proposed report that the commission require this company to offer to acquire the properties of the Kansas & Sidell and the Casey & Kansas, two short lines in Illinois connecting with the old Chicago & Alton, at a commercial value of $100,000. As a condition of the authorization of the acquisition of the Alton the B. & O. was required to agree to abide by the commission's findings with respect to the acquisition. The engineering and land reports of the commission's Bureau of Valuation indicate a cost of reproduction of the properties, less depreciation, as of 1927, to be $727,594.

CHICAGO & ILLINOIS MIDLAND.—*Operation and Securities.*—The Interstate Commerce Commission has authorized the St. Louis, Jerseyville & Springfield to acquire a line of railroad extending from Springfield, Ill., to Lock Haven, 78.8 miles, and to issue $50,500 of common stock, $1,000,000 of preferred stock and $1,700,000 of first mortgage 6 per cent bonds, series A, the proceeds to be used in acquiring the property. The Chicago & Illinois Midland is authorized to acquire control of the St. Louis, Jerseyville & Springfield under lease and to operate under trackage rights over the Alton & Eastern's line from a point near Lock Haven to Granite City, 23.6 miles, and over 1.3 miles of joint track of the Illinois Central and Baltimore & Ohio in Springfield.

CHICAGO & NORTH WESTERN.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $6,000,000 of 5 per cent first and refunding mortgage bonds, series E, to be pledged and repledged as collateral security for short term notes.

CHICAGO, BURLINGTON & QUINCY.—*Abandonment.*—The Interstate Commerce Commission has authorized this company to abandon a line extending from Fairmont, Neb., to a point near McCool Junction, 6.9 miles.

CHICAGO, ROCK ISLAND & PACIFIC.—*Condensed Annual Report.*—The condensed income account of this company for 1931 shows net deficit, after interest and other charges, of $386,545, as compared with net income of $7,700,229 in 1930. Selected items from the Income Statement follow:

	1931	1930	Increase or Decrease
RAILWAY OPERATING REVENUES	99,069,563	123,079,910	—24,010,346
Maintenance of way	10,987,985	15,319,813	—4,331,828
Maintenance of equipment	17,717,462	21,224,498	—3,507,036
Transportation	37,553,757	45,447,900	—7,894,143
TOTAL OPERATING EXPENSES	74,526,867	90,551,758	—16,024,890
NET REVENUE FROM OPERATIONS	24,542,695	32,528,151	—7,985,456
Railway tax accruals	6,530,000	7,198,000	—668,000
Railway operating income	17,988,880	25,296,878	—7,307,997
Equipment rents—Dr.	3,871,993	4,462,122	—590,129
Joint facility rents—Dr.	1,192,881	1,086,949	105,931
NET RAILWAY OPERATING INCOME	12,924,007	19,747,807	—6,823,800
Non-operating income	1,068,318	1,375,259	—306,941
GROSS INCOME	13,992,325	21,123,065	—7,130,741
Rent for leased roads	155,289	155,334	45
TOTAL DEDUCTIONS FROM GROSS INCOME	294,768	295,332	565
NET INCOME	* 386,545	7,700,229	—8,086,774

* Deficit.

FLORIDA EAST COAST.—*Abandonment.*—The Interstate Commerce Commission has authorized this company and its receivers to abandon a 1.8 mile line extending from Ormond, Fla., to Ormond Beach.

KENTUCKY & INDIANA TERMINAL.—*R. F. C. Loan.*—This company has applied to the Reconstruction Finance Corporation for a loan of $800,000 to meet maturing short-term obligations and vouchers for materials and supplies.

LEHIGH VALLEY.—*Omits Preferred Dividend.*—Directors of this company last week took no action on the quarterly dividend of $1.25 due on its $5 cumulative preferred stock.

MISSISSIPPI EXPORT.—*R. F. C. Loan.*—This company has applied to the Reconstruction Finance Corporation for a loan of $100,000 to pay a bank note and other maturing obligations, offering as security $100,000 of its bonds.

NEW YORK CENTRAL.—*Abandonment.*—This company and the Michigan Central have applied to the Interstate Commerce Commission for authority to abandon the East Jordan branch of the Michigan Central, from Frederic, Mich., to East Jordan, 36.31 miles.

SOUTHERN PACIFIC.—*Acquisition of St. L. S. W.*—This company has filed with the Interstate Commerce Commission an acceptance of the conditions on which the commission recently announced that it would authorize acquisition by the S. P. of control of the St. Louis Southwestern, provided sufficient minority stock is offered it to comply with its original proposal to acquire 85 per cent of the stock.

SUGAR LAND.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its line from House Junction, Tex., to Archer, 21.5 miles.

TEXAS SOUTH-EASTERN.—*R. F. C. Loan.*—This company has applied to the Reconstruction Finance Corporation for a loan of $30,000 to enable it to pay bank loans.

WACO, BEAUMONT, TRINITY & SABINE.—*R.F.C. Loan.*—The receivers have applied to the Reconstruction Finance Corporation for a loan of $8,983,000. Of this, $1,110,000 is to take up an issue of bonds, $6,241,902 is to complete construction work and repair the existing property, and $638,744 to meet interest obligations.

WESTERN PACIFIC.—*Bonds.*—The Interstate Commerce Commission has authorized this company to issue $15,000,000 of general and refunding mortgage bonds, series A, and a 5 per cent promissory note or notes for $5,000,000, the bond to be used as security for a loan and for the notes, and the notes to be exchanged for an equal amount of outstanding debentures.

Average Prices of Stocks and of Bonds

	Mar. 8	Last week	Last year
Average price of 20 representative railway stocks	33.11	30.71	89.68
Average price of 20 representative railway bonds	71.16	70.21	94.04

Dividends Declared

Lehigh Valley.—Dividend Action Deferred on Preferred.

New York, New Haven & Hartford.—Preferred, $1.75, quarterly, payable April 1 to holders of record March 18.

Old Colony.—1¾ per cent, quarterly, payable April 1 to holders of record March 12.

St. Louis, Rocky Mountain & Pacific.—Preferred, $1.25, quarterly, payable March 31 to holders of record March 15.

St. Joseph, South Bend & Southern.—Common, 75c; Preferred, 2½ per cent, both payable March 15 to holders of record March 11 to 14.

Virginian.—Common, $1.50, quarterly, payable April 1 to holders of record March 12.

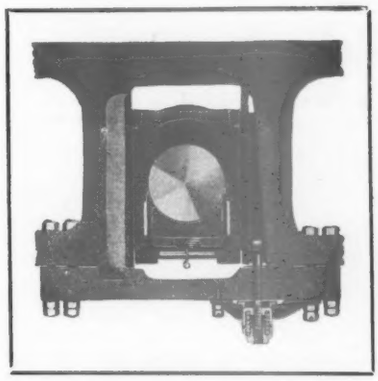
January 1, 1933, has been set as the final date on which railroads must submit plans for displays which they intend to exhibit at the Century of Progress Exhibition which will open in Chicago on June 1, 1933. At a meeting of representatives of several of the railroads and the officers of the exhibition, on March 2, it was indicated that while some railroads have formulated plans, none have yet been definitely approved.

Continued on Next Left Hand Page

EVERY POUNDING WEDGE

Is Notice Of A Maintenance Job On The Way . . . .

Keep out the slack and you keep down repair costs. « But even though you set up ordinary driving box wedges as tightly as you dare, you must still leave a fraction of an inch for temperature rise when the engine is on the road. « This fraction of an inch grows under the shock of the piston thrust into the too familiar clank! « If you could only adjust the wedges as the locomotive runs, you could keep the slack from gaining a foot-hold. « Franklin Automatic Adjustable Wedges do just this. They adjust the wedges with every revolution of the drivers and reduce maintenance by preventing slack. « Every locomotive needs them. Every long run requires them.



FRANKLIN RAILWAY SUPPLY CO., INC.

NEW YORK CHICAGO MONTREAL

Railway Officers

EXECUTIVE

Walter Wathall, executive general agent of the Missouri-Kansas-Texas, with headquarters at San Antonio, Tex., has been appointed to the newly-created position of assistant to the president, with the same headquarters.

T. E. Bond, traffic manager of the Elgin, Joliet & Eastern, has been elected vice-president in charge of traffic to fill a position that has been vacant for some time. Mr. Bond, whose headquarters will be as before at Chicago, will also perform such duties as may be assigned to him by the president or board of directors.

Albert N. Williams, general superintendent of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Minneapolis, Minn., has been elected president of the Chicago & Western Indiana and the Belt Railway of Chicago, at Chicago, to succeed **Edward H. Lee,** who has retired at his own request and who has been voted the title of president retired by the directors of both roads. These changes will become effective on April 1.

Mr. Lee was born on January 29, 1863, at Dayton, Ohio. He attended Ohio State University from 1877 to 1879 and Wooster University during 1883 and 1884. He entered railway service in 1880 as a rodman on the Scioto Valley (now part of the Norfolk & Western), and subsequent to 1887, he served on various roads as an instrument man, assistant engineer and resident engineer, including the New York, Chicago & St. Louis, the Wisconsin Central and the Union Pacific. He then entered the service of the Elgin, Joliet & Eastern as

Edward H. Lee

office engineer, serving as chief engineer of that road from 1889 to 1893. From the later date until 1897, Mr. Lee was engaged in private practice as engineer and superintendent for contractors and in charge of field work for the Sanitary District of Chicago. During 1898 he served as principal assistant engineer on joint track elevation at Sixteenth street, Chicago. In the same year he went with the Chicago & Western Indiana and the Belt Railway of Chicago, where he served as engineer and general roadmaster until 1905, when he was promoted to chief engineer of these roads. In 1915 Mr. Lee was further advanced to vice-president in addition to his duties as chief engineer. During the period of federal control, Mr. Lee acted as president, but resumed the position of vice-president and chief engineer on the return of the railroads to their owners, which position he held until 1927, when he was elected president of the C. & W. I. and the Belt Railway.

FINANCIAL, LEGAL AND ACCOUNTING

G. M. Swanstrom, general attorney of the Minneapolis & St. Louis, at Minneapolis, Minn., has assumed also the duties of general solicitor, following the appointment of **C. W. Wright** as counsel for the receiver, as noted in the *Railway Age* for March 5.

OPERATING

J. P. Polk has been appointed assistant superintendent of the Louisville & Nashville, succeeding **A. T. Hamilton,** deceased.

TRAFFIC

Thomas L. Macdonald, freight traffic manager of the Central region of the Canadian National, will retire effective March 15, after 45 years of service.

F. C. Cheney has been appointed assistant freight traffic manager of the Seaboard Air Line, with headquarters at Atlanta, Ga., succeeding **S. P. Stringfellow,** deceased. Mr. Cheney's former position, acting assistant freight traffic manager, has been abolished.

H. H. Melanson, assistant traffic vice-president of the Canadian National since January 1, 1930, retired from active duty on March 9, after 43 years of continuous service with that road and its predecessors.

J. W. White, assistant passenger traffic manager of the Missouri-Kansas-Texas, has been appointed to the newly-created position of general freight and passenger agent, with headquarters as before at St. Louis, Mo., and the position of assistant passenger traffic manager has been abolished.

F. A. Young, general agent in the passenger department of the Pere Marquette at Detroit, Mich., has been appointed also to the same position on the Chesapeake & Ohio at that point. **J. F. Hanstein** has been appointed western passenger agent, with headquarters at St. Louis, Mo., to succeed **F. E. Landmeier,** transferred.

John R. McLeod, assistant general freight agent on the Illinois Central at St. Louis, Mo., has been promoted to general freight agent at Memphis, Tenn., and has been succeeded by **James L. Lumsden,** assistant coal traffic manager, at Chicago, the latter position having been abolished. **Charles L. Netherland,** general freight agent in charge of solicitation at Memphis, has been appointed to the newly-created position of general perishable freight agent at Chicago.

P. D. Freer, general freight agent for the Baltimore & Ohio, with headquarters at Cincinnati, Ohio, has been promoted to freight traffic manager, with the same headquarters, to succeed **H. R. Lewis,** deceased. **R. L. Galleher,** assistant general freight agent at Cincinnati, has been promoted to general freight agent at that point, to succeed Mr. Freer, and has been succeeded by **R. B. Kinkaid,** also assistant general freight agent at Cincinnati. **J. M. McGohn,** commercial agent at Cincinnati, has been promoted to assistant general freight agent, to succeed Mr. Kinkaid.

H. E. Huntington, who has been appointed freight traffic manager of the Baltimore & Ohio, with headquarters at Rochester, N. Y., was born on July 23, 1869, at New Lisbon, Wis. He entered railway service in 1887, as clerk and city ticket agent for the Minneapolis, St.

H. E. Huntington

Paul & Sault Ste. Marie. From November, 1899, to May, 1901, he was city passenger agent of the Baltimore & Ohio at Pittsburgh, Pa., and on the latter date he was appointed chief clerk to the assistant general passenger agent of the Erie, with headquarters at Cleveland, Ohio. In August, 1902, he was appointed division passenger agent at Elmira, N. Y., and in May, 1905, he was promoted to general agent, passenger department. In 1908, Mr. Huntington was appointed general passenger agent of the Buffalo, Rochester & Pittsburgh, and in June, 1929, he was advanced to assistant traffic manager, the position he held until the B. R. & P. became a part of the Baltimore & Ohio, when he was

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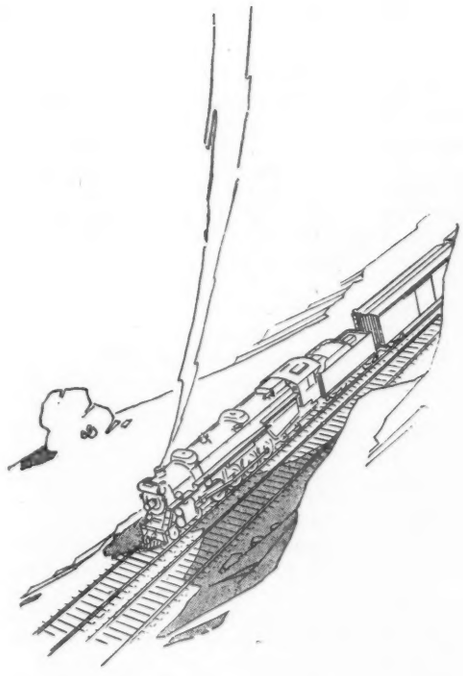
But In Oil Stills, Steel and Boiler Plants



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NEW YORK **CHICAGO**

promoted to freight traffic manager of the latter road.

ENGINEERING AND SIGNALING

J. R. Watt, general roadmaster of the Louisville & Nashville, has been promoted to the newly-created position of engineer maintenance of way, with headquarters as before at Louisville, Ky., which position combines the duties of the general roadmaster and assistant engineer maintenance of way, following the retirement of **J. F. Burns,** assistant engineer maintenance of way, as noted in the *Railway Age* for January 23. The positions of general roadmaster and assistant engineer maintenance of way have been abolished. Mr. Watt has been connected with the engineering and maintenance of way departments of the Louisville & Nashville for more than 26 years. He was born on April 16, 1884, at Greenfield, Ohio, and attended Salem academy, South Salem, Ohio, and later the University of Ohio. He entered railway service in August, 1905, as a rodman on the Louisville division of the Louisville & Nashville. Until 1914, Mr. Watts served as instrumentman and assistant engineer on the Cumberland Valley and Louisville divisions, as assistant engineer at Birmingham, Ala., and for a short time in the chief engineer's office at Louisville. In that year he was promoted to roadmaster of the Nashville division, which position he held until 1917, when he was further advanced to general roadmaster, with headquarters at Louisville. He held this position continuously until his recent appointment as engineer maintenance of way, effective February 15.

J. R. Watt

MECHANICAL

A. I. Sellers has been appointed superintendent of shops of the Southern Pacific Lines in Texas and Louisiana, at Houston, Tex., succeeding **J. T. Connor,** who has retired.

P. C. Wray, superintendent of shops on the Chicago River & Indiana and the Indiana Harbor Belt, with offices at Chicago and Gibson, Ind., has been appointed master mechanic of these roads, with the same headquarters, to succeed **P. A. Campbell,** deceased. The position of superintendent of shops has been abolished.

C. R. Sheckler has been appointed road foreman of engines of the Philadelphia division of the Pennsylvania; **G. W. Humble,** who served in that capacity, has retired. **W. H. Smith,** road foreman of engines of the Central region, with headquarters at Pittsburgh, Pa., has been transferred to the Baltimore division as assistant road foreman of engines. **L. R. Stewart** has been appointed to succeed Mr. Smith as road foreman of engines of the Central region.

G. F. Tipton, master mechanic on the Southern, with headquarters at Bristol, Va., has been transferred to Princeton, Ind., to succeed **M. R. Brockman,** who has been transferred to Somerset, Ky., where he replaces **H. C. Trexler,** transferred. **F. T. Walden,** master mechanic, with headquarters at Charleston, S. C., has been transferred to Ludlow, Ky., where he relieves **H. G. Stubbs,** who has been transferred to Atlanta, Ga., to succeed **L. C. Shults,** who has been promoted.

PURCHASES AND STORES

A. S. Macdonald has been appointed assistant general storekeeper, Eastern lines, of the Canadian Pacific, with headquarters at Montreal, Que., and **G. E. Hall** has been appointed to succeed Mr. Macdonald as assistant general storekeeper, Western lines, with headquarters at Winnipeg, Man.

SPECIAL

Dr. F. A. Lofton, chief surgeon of the Chicago & Western Indiana, has been appointed also to the same position on the Belt Railway of Chicago, to succeed **Dr. W. H. Bohart,** who has retired because of ill health. Dr. Bohart was also chief surgeon of the Chicago & Eastern Illinois and **Dr. J. G. Frost,** assistant chief surgeon of the Belt Railway, has been appointed chief surgeon of the C. & E. I., to succeed Dr. Bohart. The position of assistant chief surgeon of the Belt Railway has been abolished.

OBITUARY

Eppa Hunton, Jr., president of the Richmond, Fredericksburg & Potomac, died on March 5, at his home in Richmond, Va., from a heart affection from which he had suffered for more than a year. Mr. Hunton was 77 years of age.

George W. Boschke, chief engineer of the Southern Pacific, Pacific Lines, with headquarters at San Francisco, Cal., died on March 3 of pneumonia, at the Southern Pacific hospital at that place. Mr. Boschke was 67 years of age and had been chief engineer of the Southern Pacific since 1921.

A. S. Payne, superintendent of the Norfolk division of the Norfolk & Western, died of a heart attack on March 3, at his home in Crewe, Va. Mr. Payne entered railway service in 1888, with the Norfolk & Western, serving successively, until 1918, as car foreman's clerk, division maintenance of way clerk; chief clerk to general superintendent; chief clerk to division superintendent; chief clerk to general superintendent, and chief clerk to general manager. In 1918, he was appointed assistant division superintendent; in 1920, superintendent of terminals, and in 1922, division superintendent. In 1923 he was transferred from Roanoke to Crewe, Va., in the same capacity, which position he held until his death.

Alexis D. Parker, who retired on March 1, 1916, as vice-president of the Colorado & Southern, died on March 3 at La Jolla, Cal., after an illness of several weeks. Mr. Parker was 73 years of age. He was born at Wilmington, Del., and entered railway service in 1883, as a trackman on the Denver & Rio Grande. Until September 26, 1893, he served as a machinist's helper, a storehouse clerk, in various other clerical positions and as chief clerk. On that date he was appointed auditor for the receiver of the Union Pacific, Denver & Gulf, (now part of the Colorado & Southern), being appointed also to the same position on the Denver, Leadville & Gunnison (now also part of the Colorado & Southern), on August 8, 1894. On January 12, 1899, Mr. Parker was promoted to general auditor for the C. & S., being elected vice-president of that road on October 12, 1905, which position he held until his retirement in 1916.

Charles S. Roberts, assistant freight traffic manager of the Baltimore & Ohio, died suddenly at Atlantic City, N. J., on March 6, after a heart attack. Mr. Roberts was born in Washington, D. C., on February 4, 1870. He entered railroad service in the freight department of the Ohio Southern (now the Detroit, Toledo & Ironton), at Springfield, Ohio. On October 10, 1897, he became associated with the B. & O., as stenographer at Pittsburgh, Pa., and served successively until March, 1920, as secretary to the division freight agent at Pittsburgh, Pa.; assistant rate clerk; division rate clerk; chief clerk of the general freight office at Pittsburgh; division freight agent at Youngstown, Ohio, and chief of the tariff bureau at Baltimore, Md. On March 1, 1920, he was appointed assistant general freight agent at Pittsburgh, and on June 1, 1920, he was transferred to Baltimore in the same capacity. On February 1, 1924, Mr. Roberts became general freight agent at Baltimore, and on July 16, 1930, he was advanced to assistant freight traffic manager at Baltimore, the position he held until his death.

Tables of Revenues and Expenses of Railways Begin on Next Left Hand Page

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THEY must be good from a chemical point of view—good from a physical point of view—good from a service point of view. Alco Forgings are just that kind. For years they have demonstrated their capability for reliable and enduring service.

Alco Forgings are precision built, not only precise in every dimension, but precise in every phase of manufacture. They are made from billets which must pass rigid tests for chemical properties and physical soundness. High carbon steels are subjected to a tensile test and alloy steels to a full macroscopic test. The billets are preheated under pyrometer control before forging. Later the forgings are heat-treated, again under pyrometer control, to insure the best in grain refinement, ductility and tensile strength. Complete chemical, physical and microscopical equipment insures the closest control over Alco quality.

The extensive equipment necessary for this high quality represents an investment in plant facilities and years of research, far beyond the economical duplication in any railroad shop.

That is why we say it is much cheaper for a railroad to buy Alco Forgings than to equip, maintain and operate shops to manufacture them.

American Locomotive Company
30 Church Street New York N.Y.

Revenues and Expenses of Railways

MONTH OF JANUARY OF CALENDAR YEAR 1932

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1931.
Akron, Canton & Youngstown	Jany.	171	$117,095	$39	$125,378	$13,293	$13,117	$9,794	$43,501	$10,730	$90,435	72.1	$34,943	$22,841	$12,850	$15,077
Alton	Jany.	1,017	873,721	218,175	1,238,794	139,212	205,136	73,143	553,116	81,156	1,070,006	86.4	168,788	59,554	—70,560	—211,687
Alton & Southern	Jany.	30	.....	.....	78,510	3,856	5,784	5,496	28,541	8,146	51,823	66.01	26,687	18,795	15,863	17,847
Atchison, Topeka & Santa Fe	Jany.	9,723	6,542,284	1,409,921	8,753,239	940,416	2,489,702	417,227	3,551,137	395,331	7,785,844	88.9	967,395	—15,953	44,256	1,643,397
Gulf, Colorado & Santa Fe	Jany.	1,955	1,024,148	60,376	1,152,901	131,606	312,992	56,093	473,294	68,152	1,040,178	90.2	112,723	11,965	—88,975	—145,254
Panhandle & Santa Fe	Jany.	1,876	589,446	41,073	677,845	114,804	186,572	20,812	260,036	33,699	615,923	90.9	61,922	5,003	—81,182	—15,614
Atlanta & West Point	Jany.	93	77,389	25,706	119,462	17,764	27,898	9,469	57,328	10,872	126,672	106.0	—7,210	—18,644	—27,275	—16,299
Western of Alabama	Jany.	133	80,658	26,699	121,304	19,149	34,873	10,072	56,499	10,293	133,839	110.3	—12,535	—23,115	—16,750	—6,662
Atlanta, Birmingham & Coast	Jany.	639	183,539	6,277	213,846	61,673	69,933	24,586	114,722	19,137	298,412	139.5	—84,566	—99,987	—118,274	—100,494
Atlantic Coast Line	Jany.	5,144	3,083,712	644,350	4,176,179	576,222	796,399	164,062	1,595,414	157,692	3,335,320	79.9	840,859	440,565	258,836	781,765
Charleston & Western Carolina	Jany.	342	138,728	2,616	146,618	23,341	28,031	6,861	68,183	5,009	131,411	89.6	15,207	—1,317	—3,290	9,358
Baltimore & Ohio	Jany.	6,397	9,657,680	1,002,225	11,439,237	924,532	2,285,349	414,885	4,650,066	695,307	9,092,515	79.5	2,346,722	1,570,316	1,354,916	1,328,153
Baltimore & Ohio Chic. Term	Jany.	85	.....	.....	283,292	23,116	55,569	2,233	136,985	17,123	241,090	85.1	42,202	—11,386	88,487	54,076
Staten Island Rapid Transit	Jany.	23	49,780	97,512	154,584	7,578	13,335	2,187	93,065	15,376	131,541	85.1	23,043	5,243	—8,594	—1,448
Bangor & Aroostook	Jany.	619	619,859	28,940	671,253	77,045	89,597	4,810	150,877	26,218	349,937	52.1	321,316	263,843	241,973	229,122
Belt Ry. Co. of Chicago	Jany.	53	.....	.....	330,558	18,927	32,245	3,295	177,655	7,382	239,504	72.5	91,054	30,233	65,762	148,499
Bessemer & Lake Erie	Jany.	226	236,781	1,563	245,553	36,144	180,889	12,041	127,392	41,024	397,485	161.9	—151,932	—177,382	—176,828	—199,548
Boston & Maine	Jany.	2,092	2,619,287	798,273	4,030,799	628,153	626,710	76,398	1,666,339	192,059	3,200,170	79.4	830,629	599,009	410,118	729,489
Brooklyn Eastern District Term	Jany.	11	69,699	.....	70,559	5,613	7,896	196	24,563	6,241	44,509	63.1	26,050	19,676	19,676	34,453
Buffalo & Susquehanna	Jany.		Included in Baltimore & Ohio													
Buffalo, Rochester & Pittsburgh	Jany.		Included in Baltimore & Ohio													
Burlington-Rock Island	Jany.	310	98,804	1,516	105,146	17,834	12,001	5,861	48,310	9,870	93,498	88.9	11,648	4,745	—11,896	—25,988
Cambria & Indiana	Jany.	37	94,856	.....	95,068	6,269	37,793	644	12,058	8,041	64,805	68.16	30,263	17,407	82,054	101,436
Canadian Pacific Lines in Maine	Jany.	233	201,094	18,745	233,534	29,953	42,197	5,025	83,273	4,082	164,530	70.4	69,004	58,004	37,753	—15,574
Canadian Pacific Lines in Vermont	Jany.	85	63,972	19,135	101,217	14,320	24,824	2,213	63,665	2,915	107,937	106.6	—6,720	—11,430	—33,715	—45,965
Central of Georgia	Jany.	1,944	759,480	121,042	1,018,652	113,851	192,935	56,077	498,038	69,558	938,994	92.2	79,658	—20,946	—35,151	234,501
Central New Jersey	Jany.	692	1,979,403	448,287	2,595,862	209,103	534,451	46,211	1,171,258	110,051	2,088,053	80.4	507,809	296,252	216,679	438,066
Central Vermont	Jany.	457	327,899	56,151	428,613	76,282	88,512	14,457	219,751	22,039	421,407	98.3	7,206	—10,135	—9,478	49,860
Chesapeake & Ohio	Jany.	3,144	7,437,565	258,006	7,998,232	1,028,796	1,522,335	164,372	2,186,100	330,203	5,252,845	65.7	2,745,387	1,957,314	1,951,526	2,761,647
Chicago & Eastern Illinois	Jany.	938	887,175	114,746	1,101,120	145,548	245,334	66,768	520,304	65,540	1,052,825	95.6	48,295	—62,288	—189,200	—186,325
Chicago & Illinois Midland	Jany.	131	214,817	1,956	223,567	16,796	48,689	19,861	67,020	17,644	169,271	75.7	54,296	45,561	47,152	21,299
Chicago & North Western	Jany.	8,442	4,297,711	969,370	5,964,354	546,178	1,268,495	160,120	2,979,614	312,834	5,306,637	89.0	657,717	—25,982	—273,737	506,788
Chicago, Burlington & Quincy	Jany.	9,300	5,463,236	758,231	6,992,535	619,810	1,311,806	209,407	2,874,822	345,131	5,410,886	77.4	1,581,649	888,775	635,006	2,109,978
Chicago Great Western	Jany.	1,495	1,142,468	82,590	1,316,235	143,476	181,724	72,959	577,702	61,738	1,040,322	79.0	275,913	201,912	1,014	211,642
Chicago, Indianapolis & Louisville	Jany.	644	600,439	69,822	753,691	66,239	143,712	25,496	341,310	31,312	616,174	81.8	137,517	73,147	—29,357	33,150
Chicago, Mil., St. Paul & Pacific	Jany.	11,273	5,717,600	587,499	7,015,788	589,313	1,582,727	254,732	3,225,399	307,719	6,010,246	85.7	1,005,542	269,327	—209,329	572,344
Chicago River & Indiana	Jany.	20	.....	.....	404,474	20,000	24,000	1,955	146,729	13,060	205,744	50.9	198,730	157,404	225,142	244,694
Chicago, Rock Island & Pacific	Jany.	7,620	4,544,267	682,788	5,837,017	566,198	1,297,093	212,841	2,670,817	320,815	5,156,658	88.3	680,359	175,215	—161,303	897,951
Chicago, Rock Island & Gulf	Jany.	721	350,135	33,949	370,067	29,849	38,984	18,556	125,549	20,523	236,239	63.8	133,828	110,714	75,744	141,266
Chic., St. Paul., Minn. & Omaha	Jany.	1,736	925,428	161,034	1,188,023	167,082	238,988	33,116	660,618	65,222	1,173,875	98.8	14,148	—76,583	—148,590	5,668
Clinchfield Railroad	Jany.	309	359,458	2,956	368,373	40,348	93,295	17,896	82,007	14,756	248,302	67.4	120,071	54,851	66,368	185,232
Colorado & Southern	Jany.	1,037	427,303	33,242	514,532	50,321	115,374	14,882	213,158	38,982	430,290	83.6	84,242	15,508	3,402	108,736
Ft. Worth & Denver City	Jany.	694	391,384	50,092	517,833	51,494	87,431	17,249	178,878	36,031	350,557	67.7	167,276	135,139	109,324	100,145
Wichita Valley	Jany.	270	52,198	832	56,108	8,620	3,617	62	22,054	1,943	36,383	64.8	19,725	13,096	4,322	—5,165
Columbus & Greenville	Jany.	167	61,838	6,242	72,467	19,712	13,050	3,173	32,470	17,168	85,573	118.1	—13,106	—16,106	—16,075	3,828
Conemaugh & Black Lick	Jany.	20	17,856	.....	38,509	5,664	9,632	503	24,883	3,913	44,593	115.8	—6,086	—6,586	—5,270	—7,009
Delaware & Hudson	Jany.	854	1,624,366	136,834	1,902,832	323,193	554,073	53,229	850,328	165,256	1,943,309	102.1	—40,477	—133,404	—129,662	172,301
Delaware, Lackawanna & Western	Jany.	998	2,547,523	703,565	3,880,244	290,084	760,119	124,603	1,868,848	164,185	3,239,608	83.5	640,636	240,462	251,375	509,635
Denver & Rio Grande Western	Jany.	2,556	1,312,062	89,434	1,491,503	164,199	368,254	49,680	560,388	88,955	1,236,891	82.9	254,612	89,588	110,700	446,230
Denver & Salt Lake	Jany.	232	216,976	6,828	235,619	19,909	31,488	1,873	36,495	11,027	100,792	42.8	134,827	117,821	124,300	101,406
Detroit & Mackinac	Jany.	242	35,868	4,265	45,648	7,610	10,502	1,642	23,768	3,752	47,273	103.5	—1,625	—8,901	—9,074	—5,563
Detroit & Toledo Shore Line	Jany.	50	263,534	.....	265,478	18,424	24,708	7,524	61,963	7,194	119,799	45.1	145,679	119,521	70,578	67,257
Detroit Terminal	Jany.	19	.....	.....	69,041	7,252	8,468	.....	35,507	3,308	54,535	79.0	14,506	2,263	—6,015	6,164
Detroit, Toledo & Ironton	Jany.	487	356,298	684	368,668	35,482	70,192	11,742	141,085	23,737	282,238	76.6	86,430	38,787	24,736	91,250
Duluth, Missabe & Northern	Jany.	563	58,110	1,974	76,465	86,837	196,698	3,398	143,342	40,522	470,760	615.7	—394,295	—402,753	—405,855	—613,181
Duluth, Winnipeg & Pacific	Jany.	178	78,710	3,793	85,209	14,901	20,399	3,195	44,578	7,315	90,813	106.6	—5,604	—10,150	9,404	608
Elgin, Joliet & Eastern	Jany.	447	747,382	12	810,529	105,821	179,983	13,689	387,536	57,871	744,825	91.9	65,704	—49,840	—94,915	67,124

Continued on Next Left Hand Page

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TONCAN COPPER Molybdenum IRON

AGATHON NICKEL IRON

CENTRAL ALLOY DIVISION

REPUBLIC STEEL CORPORATION

MASSILLON OHIO

Revenues and Expenses of Railways

MONTH OF JANUARY OF CALENDAR YEAR 1932—CONTINUED

Name of road	Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1931.
Erie Railroad ..... Jany.	2,046	$4,343,238	$528,982	$5,330,800	$530,459	$1,206,693	$148,215	$2,242,379	$262,670	$4,403,013	82.6	$927,787	$522,884	$412,827	$904,593
Chicago & Erie ..... Jany.	269	638,526	28,709	706,851	84,471	112,886	25,933	236,908	37,047	497,235	70.3	209,616	152,490	—45,868	46,178
New Jersey & New York ..... Jany.	45	16.659	74,773	93,764	8,461	26,701	1,555	56,238	3,898	96,853	103.3	—3,089	—8,835	—29,695	—25,721
N. Y., Susquehanna & Western.... Jany.	131	223,391	31,076	276,866	31,823	49,172	4,658	129,472	12,879	228,002	82.4	48,864	16,707	—7,109	74,840
Florida East Coast ..... Jany.	864	562,974	231,881	902,937	110,925	131,597	27,015	242,198	44,404	570,848	63.2	332,089	231,717	173,276	191,064
Fort Smith & Western ..... Jany.	249	62,013	1,663	70,038	13,682	11,971	4,695	26,280	4,850	61,642	88.0	8,396	5,389	3,640	3,342
Galveston Wharf ..... Jany.	11	.....	.....	168,938	44,039	4,673	3,687	21,226	8,896	97,480	57.7	71,458	48,458	48,510	26,916
Georgia R. R. ..... Jany.	328	193,908	20,160	234,465	36,498	57,141	19,601	131,008	20,301	264,900	113.0	—30,435	—38,275	—26,615	19,820
Georgia & Florida ..... Jany.	463	64,636	1,636	71,210	18,931	16,220	8,624	36,444	6,933	87,345	122.7	—16,135	—22,836	—26,275	—28,603
Grand Trunk Western ..... Jany.	1,021	1,120,431	81,254	1,313,478	157,800	287,958	48,162	707,869	96,106	1,308,139	99.6	5,339	—109,253	—204,683	—182,173
Canadian Natl. Lines in New Eng.. Jany.	172	78,155	6,101	97,241	25,344	20,973	3,717	68,505	9,911	132,261	136.01	—35,020	—49,150	—96,203	—76,408
Great Northern ..... Jany.	8,338	3,032.472	373,502	3,869.419	477,253	1,050,619	192,046	1,930,489	216,788	3,912,409	101.1	—42,990	—578,949	—735,155	125,449
Green Bay & Western ..... Jany.	234	82,972	1,247	86,649	17,732	14,988	1,054	49,081	3,746	86,249	99.5	400	—6,603	—8,131	1,283
Gulf & Ship Island ..... Jany.	307	67,399	11,580	88,449	14,854	13,237	5,712	52,426	11,215	98,200	111.0	—9,751	—26,851	—37,569	—43,861
Gulf, Mobile & Northern ..... Jany.	733	226,401	17,335	258,774	38,281	58,430	25,970	114,758	20,041	257,480	99.50	1,294	—21.766	—38.839	32,493
Illinois Central ..... Jany.	5,018	5,283,563	874,600	6,659,496	538,400	1,452,978	222,990	2,806,323	330,853	5,402,512	81.1	1,256,984	700,484	636,675	561,868
Yazoo & Mississippi Valley..... Jany.	1,681	976,865	95,615	1,146,333	106,450	177,730	32,887	508,855	58,050	886,006	77.3	260,327	123,827	22,829	—157,073
Illinois Central System..... Jany.	6,700	6,260,428	970,215	7,805.829	644,850	1,630,708	255,877	3,315,178	388,903	6,288,518	80.6	1,517,311	824,311	659,504	404,795
Illinois Terminal ..... Jany.	543	349,922	64,590	435,401	48,002	58,287	16,852	164,843	28,571	315,951	72.57	119,450	88,850	61.259	87,742
Kansas City Southern ..... Jany.	783	734,261	27,718	585,320	67,148	134,651	45,258	281,551	58,460	589,146	68.6	269,174	180,847	163,858	248,461
Texarkana & Ft. Smith ..... Jany.	99	81.051	1.777	92.517	17,248	7,338	5,726	33,472	8,057	73,179	79.1	19,338	10,298	—9,558	18,109
Kansas, Oklahoma & Gulf ..... Jany.	326	170,605	645	174,374	12,665	16,556	10,267	44,163	9,192	92,827	53.2	81,547	61,847	46,252	52,634
Lake Superior & Ishpeming ..... Jany.	160	23,425	117	25,330	14,892	16,063	592	18,005	7,257	56,809	224.3	—31,479	—46,476	—47,543	—56,798
Lake Terminal ..... Jany.	12	.....	.....	22,147	2,207	3,987	.....	16,419	2,146	24,759	111.8	—2,612	—6,192	—6,424	—12,003
Lehigh & Hudson River ..... Jany.	96	131,640	515	141,973	13,326	25,244	3,191	51,625	8,701	102,087	71.9	39,886	26,952	12,104	13,935
Lehigh & New England ..... Jany.	216	268,406	526	271,849	27,387	62,346	4,654	103,780	19,083	217,245	79.9	54,604	45,057	56,006	89,070
Lehigh Valley ..... Jany.	1,361	2,687,562	273,854	3,257,472	220,717	845,861	116,412	1,619,863	125,660	2,946,357	90.4	311,115	43,357	—55,112	564,803
Louisiana & Arkansas ..... Jany.	608	349,474	9,186	394,759	60,523	55,893	23,477	108,167	24,714	273,095	69.2	121,664	78,810	67,998	51,193
Louisiana, Arkansas & Texas..... Jany.	202	45,198	461	48,659	15,294	6,967	3,693	19,732	3,808	49,494	101.7	—835	—3,639	—8,477	556
Louisville & Nashville ..... Jany.	5,263	4,672,375	558,636	5,692,782	946,402	1,312,040	210,572	2,372,119	319,455	5,195,027	91.3	497,755	45,874	79,838	847,303
Maine Central ..... Jany.	1,121	741,290	117,653	954,679	165,010	180,111	17,645	456,903	45,988	865,581	90.7	89,098	25,082	—19,754	152,991
Midland Valley ..... Jany.	363	141,061	1,047	147,009	15,800	19,171	4,201	42,238	8,466	89,871	61.1	57,138	45,165	36,227	46,448
Minneapolis & St. Louis..... Jany.	1,627	558,858	29,596	633,336	59,444	150,426	35,079	363,483	42,485	650,363	102.7	—17.027	—63.770	—81,667	—46,045
Minneapolis, St. Paul & S. S. Marie.. Jany.	4,349	1,303,075	122,217	1,576,401	229,810	423,980	64,334	900,799	111,408	1,737,325	110.2	—160,924	—358.042	—480,878	—176,981
Duluth, South Shore & Atlantic.... Jany.	560	100,448	20,646	135,882	26,592	38,008	7,480	81,647	10,865	166,266	122.4	—30,384	—60,384	—63,103	14
Spokane International ..... Jany.	163	38,623	2,496	45,327	12,381	5,504	3,320	24,087	4,936	50,805	112.1	—5,478	—10,517	—14,045	—2,999
Mississippi Central ..... Jany.	150	51,616	1,479	55,304	10,778	12,195	8,631	20,570	6,129	58,303	105.4	—2,999	—6,772	—10,703	6,771
Missouri & North Arkansas..... Jany.	364	78,559	944	84,582	15,039	11,519	8,980	36,652	8,332	80,054	94.6	4,528	2,093	—7,973	—27,794
Missouri Illinois ..... Jany.	202	70,396	606	72,858	11,616	13,729	3,652	27,179	6,084	62,257	85.4	10,601	5,207	—3,911	3,759
Missouri-Kansas-Texas Lines..... Jany.	3,188	1,847,829	227,049	2,306,944	263,970	341,459	123,504	893,941	136,739	1,776,332	77.0	530.612	331,646	183,131	355,062
Missouri Pacific ..... Jany.	7,436	4,938,408	485,651	5,977,944	589,853	1,184,670	246,522	2,609,764	302,987	4,966,926	83.1	1,011,018	586,674	320,229	1,411,563
Gulf Coast ..... Jany.	1,030	787,893	45,758	884,597	109,198	154,054	37,835	250,259	46,103	597,801	67.58	286,796	237,681	151,953	185,436
International Great Northern..... Jany.	1,159	739,724	74,870	911,578	143,179	184,372	31,505	424.314	56,201	845,980	92.80	65,598	22,000	—63,400	—38,061
San Antonio, Uvalde & Gulf..... Jany.	316	95,166	6,416	106,443	21,687	13,773	5,188	25,344	5,510	71,119	66.8	35,324	30,740	3,197	15,535
Mobile & Ohio ..... Jany.	1,152	570,355	27,861	634,871	103,946	126,603	49,047	320,735	46,180	647,308	102.0	—12,437	—72,268	—128,315	2,644
Monongahela ..... Jany.	177	320,884	1,476	324,982	40,000	40,000	1,295	79,812	8,675	169,782	52.2	155,200	141,807	66,924	93,968
Monongahela Connecting..... Jany.	6	.....	.....	49,856	6,626	24,653	250	33,573	2,723	67,825	136,0	—17,969	—23,231	—23,278	—9,954
Montour ..... Jany.	57	118,784	.....	119,394	11,059	39,010	1,425	31,431	6,967	89,892	75.3	29,502	27,458	44,738	80,772
Nashville, Chatt. & St. Louis..... Jany.	1,203	807.022	98.767	1,037,823	158,335	227,342	68,743	457,689	63,191	983,438	94.8	54,385	11,965	159	42,282
Nevada Northern..... Jany.	165	23,802	2,566	31,432	9,526	5,262	842	11,033	3,666	30,329	96.5	1,103	—7,603	—4,713	—1,241
Newburgh & South Shore..... Jany.	6	.....	.....	47,385	5,705	19,018	.....	31,554	6,371	62,648	132.2	—15,263	—26,752	—24,738	—34,488
New Orleans Great Northern..... Jany.	264	140,368	8,198	153,443	14,574	16.931	10,655	55,850	8,072	106,082	69.1	47,361	37,312	15,202	13,353
New Orleans Terminal..... Jany.	20	2,466	.....	107,695	12,711	8,102	.....	35,453	1,278	57,544	53.4	50,151	38,578	22,675	19,533
New York Central..... Jany.	11,388	17,063,520	6,286.772	26,754,735	2,807,803	5,368,488	667,309	10,989,932	1,245,936	21,535,480	80.5	5,219,255	2,471,497	1,207,144	1,868,045
Indiana Harbor Belt..... Jany.	118	.....	.....	656,270	68,000	67,000	4,751	285,337	24,514	475,663	72.5	180,607	139,803	98,066	117,367
Pittsburgh & Lake Erie..... Jany.	234	985.100	77,189	1,094,116	97,967	353,363	25,994	462,856	66,517	1,009,324	92.2	84,792	—4,745	135,469	321,152
New York, Chicago & St. Louis.... Jany.	1,698	2,347,395	87,346	2,527,265	260.254	429,969	111,899	1,050,316	126,306	1,977,760	78.3	549,505	336,833	59,716	181,234

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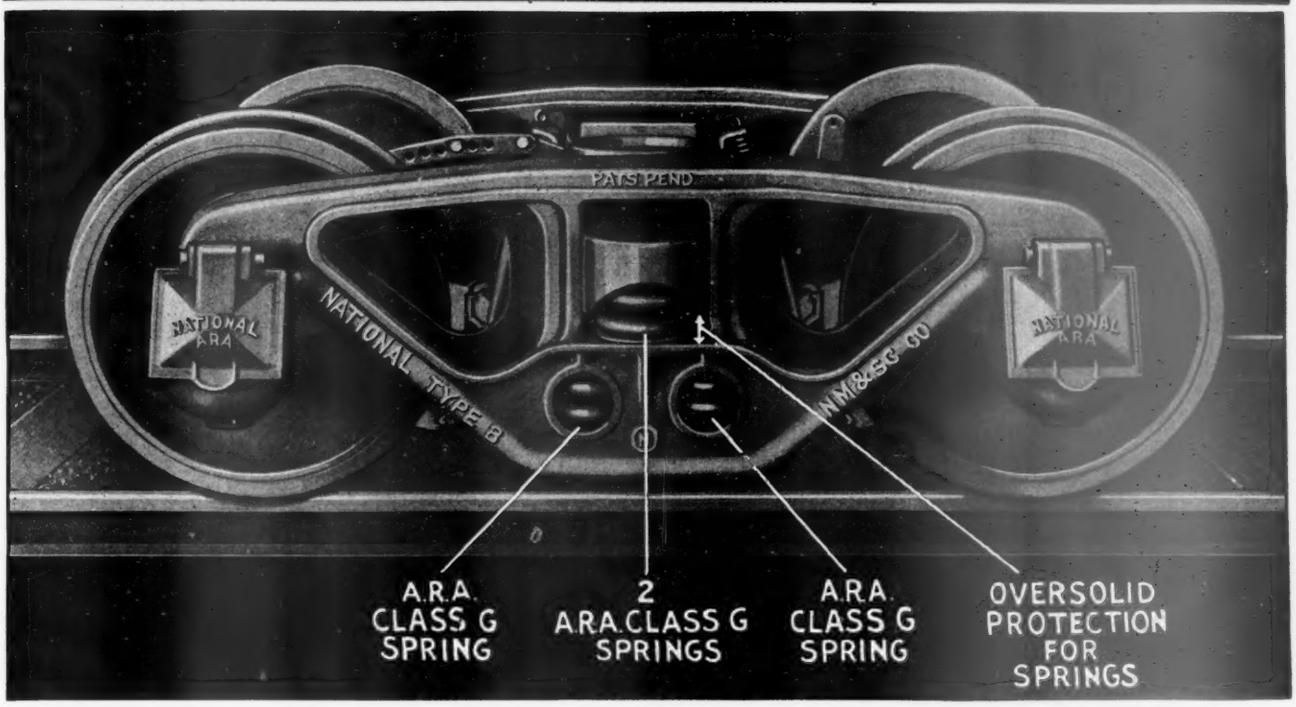
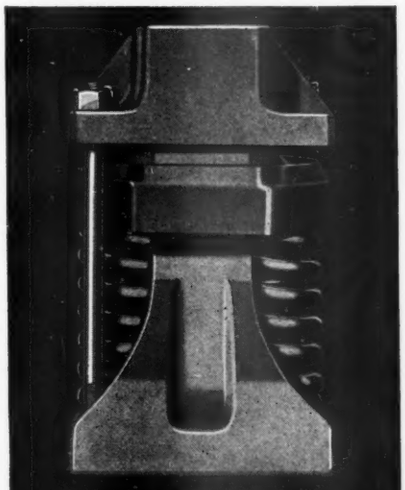
TRUCKS ››› *that Speed Train Operation*



INCREASED SPRING CAPACITY TO REDUCE DAMAGE CLAIMS



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NATIONAL
TYPE M&SC ··B··
TRUCKS

Revenues and Expenses of Railways

MONTH OF JANUARY OF CALENDAR YEAR 1932—CONTINUED

Name of road		Av. mileage operated during period.	Operating revenues: Freight.	Passenger.	Total (inc. misc.)	Operating expenses: Maintenance of Way and structures.	Maintenance of Equipment.	Traffic.	Transportation.	General.	Total.	Operating ratio.	Net from railway operation.	Operating income (or loss).	Net ry. operating income.	Net ry. operating income, 1931.
N. Y., New Haven & Hartford	Jany.	2,082	$3,754,119	$2,421,728	$7,008,748	$862,951	$1,046,901	$89,346	$2,612,172	$280,583	$5,042,171	71.9	$1,966,577	$1,466,520	$928,715	$1,383,339
New York Connecting	Jany.	20	198,163	.....	209,000	13,247	10,291	.....	36,119	1,110	60,767	29.1	148,233	112,233	77,394	70,051
New York, Ontario & Western	Jany.	568	665,331	17,858	821,725	79,614	141,845	14,660	353,160	28,431	623,426	75.9	198,299	153,260	82,056	79,567
Norfolk & Western	Jany.	2,268	4,780,367	164,520	5,152,400	628,116	1,215,928	122,217	1,563,582	261,186	3,827,629	74.3	1,324,771	648,652	743,065	1,678,683
Norfolk Southern	Jany.	932	293,087	8,797	322,730	68,162	60,153	21,350	173,503	21,789	344,946	106.9	—22,216	—66,084	—75,016	—18,796
Northern Pacific	Jany.	6,735	2,711,013	327,499	3,422,193	293,768	1,033,692	164,990	1,808,468	319,540	3,640,372	106.4	—218,179	—829,529	—555,257	83,891
Northwestern Pacific	Jany.	441	104,684	81,126	216,682	62,186	52,468	3,839	149,704	16,422	284,549	131.3	—67,867	—98,780	—103,911	—123,928
Oklahoma City-Ada-Atoka	Jany.	132	31,234	739	34,180	7,675	2,279	1,261	13,036	2,112	26,352	77.1	7,828	3,285	—4,214	2,323
Pennsylvania Railroad	Jany.	10,897	20,713,648	6,317,367	30,215,170	2,602,842	6,546,568	657,251	12,417,288	1,563,951	24,230,825	80.2	5,984,345	4,179,467	3,242,232	3,380,757
Long Island	Jany.	404	573,131	1,648,499	2,347,871	256,134	388,427	14,207	1,137,160	59,602	1,855,159	79.0	492,712	388,332	214,415	398,830
Peoria & Pekin Union	Jany.	17	7,446	Dr. 2	75,472	8,821	6,861	2,032	38,951	7,431	64,096	84.9	11,376	—4,535	14,636	37,793
Pere Marquette	Jany.	2,266	1,710,034	80,916	1,899,118	259,100	417,102	59,439	821,721	106,072	1,670,858	88.0	228,260	69,160	—30,866	—126,269
Pittsburgh & Shawmut	Jany.	102	59,406	920	60,988	12,002	23,345	1,761	18,156	4,536	59,800	98.0	1,188	126	1,484	11,015
Pittsburgh & West Virginia	Jany.	138	181,230	129	197,653	21,265	60,941	15,630	44,211	14,784	164,045	83.0	33,608	6,968	19,896	62,279
Pittsburgh, Shawmut & Northern	Jany.	197	87,005	293	90,273	16,688	17,126	1,787	38,620	7,442	81,663	90.5	8,610	6,120	2,366	17,341
Quincy, Omaha & Kansas City	Jany.	Class II Road. Will not file monthly														
Reading	Jany.	1,459	4,045,713	338,606	4,740,416	444,854	1,242,126	84,022	2,126,486	217,983	4,137,897	87.3	602,519	481,101	469,927	684,779
Atlantic City	Jany.	163	68,574	37,946	115,429	35,682	16,709	3,020	128,942	3,601	188,312	163.1	—72,883	—112,843	—118,485	—137,708
Richmond, Fredericksb'g & Potomac	Jany.	117	344,391	190,801	664,001	47,232	142,046	9,451	276,385	36,335	524,419	79.0	139,582	105,382	49,818	140,445
Rutland	Jany.	413	165,550	50,747	307,852	55,903	68,863	11,659	156,939	15,365	308,836	100.3	—984	—22,600	—17,244	—17,566
St. Louis-San Francisco	Jany.	5,266	2,797,136	335,663	3,434,545	488,759	811,675	109,986	1,388,197	179,827	3,000,344	87.4	434,201	129,535	70,866	665,519
Ft. Worth & Rio Grande	Jany.	233	30,844	1,899	38,963	15,368	12,133	2,715	28,964	3,754	62,801	161.2	—23,838	—28,273	—35,399	—30,959
St. Louis, San Francisco & Texas	Jany.	262	77,449	2,165	84,310	24,660	20,433	5,879	53,130	8,183	112,281	133.2	—27,971	—32,451	—65,998	—23,990
St. Louis Southwestern Lines	Jany.	1,913	999,503	24,984	1,096,938	160,923	203,075	80,192	438,654	76,443	974,261	88.8	122,677	33,206	—66,008	—57,061
San Diego & Arizona	Jany.	155	40,619	10,726	51,997	8,676	11,280	2,474	18,854	4,920	46,948	90.3	5,049	594	1,655	9,485
Seaboard Air Line	Jany.	4,462	2,412,035	352,143	3,069,665	484,104	606,110	168,353	1,264,823	166,155	2,741,869	89.3	327,796	150,154	12,415	239,101
Southern Ry	Jany.	6,724	5,189,356	784,303	6,527,961	1,025,129	1,532,784	184,451	2,684,487	299,079	5,777,746	88.5	750,215	186,582	24,225	420,238
Alabama Great Southern	Jany.	315	284,668	44,815	362,427	79,925	113,635	13,380	155,496	19,662	385,755	106.4	—23,328	—61,767	—61,289	10,395
Cinn., New Orleans & Tex. Pac.	Jany.	337	779,396	90,954	930,006	148,775	262,057	25,749	302,508	50,182	796,238	85.6	133,768	74,727	79,993	158,110
Georgia Southern & Florida	Jany.	397	128,113	35,285	181,068	43,379	47,132	1,775	75,850	2,399	174,688	96.5	6,380	—13,476	—2,623	28,573
New Orleans & Northeastern	Jany.	204	162,744	22,883	198,915	36,630	52,045	7,532	77,756	11,651	187,695	94.4	11,220	—19,792	—36,134	—57,873
Northern Alabama	Jany.	105	45,802	953	48,247	13,734	1,773	1,319	18,351	2,593	37,770	78.3	10,477	5,385	—9,962	—5,284
Southern Pacific	Jany.	9,113	6,188,974	1,881,384	8,966,245	1,040,141	1,756,798	290,298	3,780,287	574,351	7,669,734	85.5	1,296,511	279,248	—33,171	669,935
So. Pacific Steamship Lines	Jany.	....	351,720	21,367	394,379	13,588	136,698	18,846	316,967	26,455	512,554	130.0	—118,175	—119,011	—118,543	—136,549
Texas & New Orleans	Jany.	4,634	2,182,204	333,932	2,855,271	500,440	601,524	132,386	1,150,062	231,695	2,633,353	92.2	221,918	—53,208	—251,901	5,376
Spokane, Portland & Seattle	Jany.	555	312,282	37,578	390,209	46,631	64,055	11,012	157,882	23,631	304,153	77.9	86,056	4,111	62	29,354
Tennessee Central	Jany.	295	162,915	4,871	177,097	26,602	22,515	7,560	71,429	12,728	140,713	79.5	36,384	31,235	19,094	1,788
Terminal R. R. Assn. of St. Louis	Jany.	55	.....	.....	525,491	55,252	30,984	4,219	275,292	19,536	388,090	73.9	137,401	50,598	119,081	125,956
Texas & Pacific	Jany.	1,950	1,438,650	220,231	1,861,686	171,645	349,665	70,676	660,575	112,623	1,378,309	74.0	483,377	365,827	240,064	321,702
Texas Mexican	Jany.	162	45,077	837	51,101	11,185	9,541	2,579	20,568	6,710	50,582	99.0	519	—4,825	—8,986	—38,293
Toledo, Peoria & Western	Jany.	239	94,704	67	97,069	20,628	8,450	12,307	38,900	7,557	87,842	90.5	9,227	7,616	631	18,712
Toledo Terminal	Jany.	28	.....	.....	73,423	3,088	12,809	535	31,527	4,594	52,553	71.6	20,870	9,037	26,023	39,892
Ulster & Delaware	Jany.	128	13,337	481	46,340	12,979	10,392	940	28,521	3,419	56,251	121.4	—9,911	—26,227	—27,598	—9,804
Union R. R. of Penna.	Jany.	45	.....	.....	213,658	30,307	111,601	160	132,284	14,812	289,164	135.3	—75,506	—83,006	—65,734	—47,923
Union Pacific	Jany.	3,768	3,993,057	568,066	5,120,543	307,967	1,111,679	131,562	1,909,107	339,129	3,885,968	75.9	1,234,575	735,807	516,355	1,206,204
Oregon Short Line	Jany.	2,505	1,472,810	144,397	1,762,951	149,743	282,488	48,498	676,580	119,299	1,313,600	74.5	449,351	195,712	120,401	340,991
Oregon Wash. R. R. & Nav. Co.	Jany.	2,338	889,306	109,578	1,132,575	144,154	175,516	64,977	578,225	112,379	1,085,909	95.9	46,666	—110,671	—203,827	—114,026
Los Angeles & Salt Lake	Jany.	1,249	1,073,647	157,642	1,352,571	122,371	206,918	61,948	504,690	79,845	1,015,726	75.1	336,845	189,335	65,020	—5,456
St. Joseph & Grand Island	Jany.	258	177,261	4,378	190,815	17,215	24,095	2,600	70,722	15,779	130,411	68.3	60,404	46,295	29,828	38,583
Utah	Jany.	111	159,815	.....	160,808	15,197	30,790	404	39,625	5,352	91,368	56.8	69,440	53,188	37,375	54,971
Virginian	Jany.	608	1,101,358	9,325	1,170,705	112,486	207,266	15,739	250,852	28,580	614,828	52.5	555,877	405,877	465,033	607,740
Wabash	Jany.	2,523	2,657,971	249,969	3,155,741	457,562	565,710	166,079	1,589,638	193,736	2,988,579	94.7	167,162	—43,301	—367,212	259,393
Ann Arbor	Jany.	293	239,981	4,379	252,108	30,772	44,349	13,934	131,795	11,533	232,455	92.2	19,653	—2,304	—19,226	—8,471
Western Maryland	Jany.	891	1,083,949	7,217	1,151,986	174,884	191,600	42,815	310,965	42,355	764,989	66.4	386,997	316,997	311,528	457,500
Western Pacific	Jany.	1,051	738,796	33,933	813,321	97,343	196,044	63,073	427,206	40,087	839,023	103.2	—25,702	—120,333	—119,387	—27,803
Wheeling & Lake Erie	Jany.	511	656,693	4,807	696,857	76,316	186,591	33,587	259,011	30,853	586,358	84.1	110,499	24,917	7,064	53,151
Wichita Falls & Southern	Jany.	203	38,796	69	40,191	9,335	7,906	1,855	14,535	3,451	37,082	92.26	3,109	—1,064	—5,970	—8,460